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MEDICAL NOTES

ON

CHINA.



BY

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Vera experientia nascitur e compluribus observationibus, magna diligentia attentione et cura, notatis, quæ integram morbi historiam, cum omnibus ad rem pertinentibus circumstantiis complectuntur.

HOFFMAN.



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TO THE
RIGHT HON. THE EARL OF HADDINGTON,
LORD PRIVY SEAL, &c. &c. &c.

MY LORD,

When I sought permission to place your name at the head of this volume, I felt, you being then First Lord of the Admiralty, that it was not unbecoming in me to ask, and might not be unworthy of your Lordship to grant, the favour; inasmuch as I was satisfied, that such an Essay, to promote the well-being of the great division of the public service over which you presided, would be received with indulgence, at least; that approbation even would not be withheld, should it contribute, in any measure, to that important end. Though not now directing the Naval Force of the Country, your interest in it, and in the principal subject of these Notes consequently, is doubtless unabated; I have therefore the honour of dedicating them to your Lordship, and of subscribing myself,

My Lord,
Your Lordship's most obedient,
and respectful Servant,

JOHN WILSON.

January 10th, 1846.



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PREFACE.

AT the close of the year 1841, in consequence of continued hostilities with the Chinese; uncertainty as to their termination; prevalence of disease in, and augmentation of, force; the Lords of the Admiralty directed a floating hospital to be fitted, and despatched with all speed to the seat of war. With that view, the *Minden* was put into commission, the command of the ship being given to Captain Quin; the administration of the medical department, comprising an able surgeon, five intelligent assistants, and an ample subordinate staff, was entrusted to the writer.

The *Minden*, a seventy-two-gun ship, built of teak, strong and spacious, was well fitted for the purpose, in respect of size, structure, and height between decks; and no expense or pains which appeared requisite to complete her at all points for the special object for which she was ordered, were spared.

All the guns, except those on the fore part of the main deck, quarter deck, and forecastle, amounting to

twenty, were removed; and the whole ship—setting aside so much as was absolutely necessary to the ship's company, and ship's stores—was appropriated to the accommodation of the sick. The space thus set apart for hospital purposes consisted of the after-part of the main deck, and the whole of the lower and orlop decks; the fore-magazine also, when there was much disease in the combined force, and pressing demand for admission into hospital, was given up for its use, and became extremely useful as a general store-room for the patient's effects. The room derived from these sources was of course large, and was calculated to accommodate two hundred patients; but when, as generally happened, at least five-sixths of the entire number required to be constantly in bed, it was scarcely sufficient for so many. The remark bears on the relation of space to numbers absolutely, in connexion with the violence of disease generally encountered, but refers also, and strongly, to the nature of the majority of the cases admitted—fluxes—which render room, especially in very hot weather, an object of greater desire than many other affections of equal severity.

The limit to the supply of medicines, medical necessities, comforts, and nutriments, including wine, ale, &c.—of instruments, and, in short, of all the materials of restoration, was that of demand only, which was left to the discretion of the writer. The details also of contrivance, and of fitting, which he was directed to superintend, were entrusted to him, under the single general instruction, that, in furnishing the hospital, he should have constantly in view the two-fold object of perfect

efficiency and economy, never, however, letting the latter interfere in the slightest degree with the former.

Those excellent institutions, the Hospitals of the Royal Navy, were taken for the models of that established in the *Minden*, so far as the size, comparatively very limited, peculiar form, and uses of a ship, would permit her assimilation to a large, lofty-roomed dwelling, on shore. The same iron bedsteads, bedding, &c. ; the same, or similar, articles of hospital furniture, utensils, &c. ; metallic substances, being sometimes substituted for those of earthenware, were employed ; and the beds, sheets, shirts, and other materials requiring frequent change, were so abundant, as to leave no difficulty in the way of personal cleanliness—a great object everywhere, but which becomes doubly important when a large body of sick is necessarily confined to relatively small space. Water-closets were placed at convenient spots and easy distances ; there were baths, moveable and fixed, the latter being supplied with hot and cold water by tubes, fitted with stop-cocks ; a commodious washing-house, supplied in the same way with hot and cold water, was fitted up in the starboard bow of the lower deck, opposite the bathing room ; a separate and very complete cooking apparatus, with stoves for baking, boilers, so that hot and cold water might always be ready, night as well as day, and a good cooking establishment, was supplied for the exclusive benefit of the sick ; there were shifting, framed screens, for the purpose of isolating patients when desirable, and preventing injurious currents of air ; the ports were fitted nicely with glazed sashes, and Venetian blinds

to be used according to the state of the weather; the wards were admirably lighted by lamps made on purpose. In a word, nothing was omitted which, in the opinion of the authorities who ordered and designed the hospital establishment of the Minden, could conduce to the comfort, convenience, and well-being of the sick and wounded who might be received into it; and it may be unhesitatingly asserted, that no such moveable hospital, in respect of magnitude, means of efficiency, and completeness, ever left an English port.

To that end, the Medical Director General, Sir William Burnett, contributed largely. From him the plan, and general arrangement of the hospital fitting, emanated. With him the writer communicated on all points touching their details and completion, for sanction and being carried into effect; and through him, such suggestions and opinions as appeared deserving, received weight and efficiency with the Lords Commissioners. And his interest in the Minden did not diminish with her departure from England. During the writer's service in China, the Director-General continued to give anxious attention to all that concerned her efficiency—to requisite supplies, and to professional arrangements and results. On this subject, it is not necessary to say more; it would be uncandid to say less.

As the importance of cleanliness, bodily and domestic, increases with the necessity of accumulating persons, especially the sick, in given spaces, so does that of ventilation. That nothing might be omitted which the best sources of information on the latter subject could supply,

Dr. Reid, so distinguished in that branch of practical science, was employed by the Lords of the Admiralty to devise, and direct the construction of a ventilating apparatus in the Minden. The machinery was simple, and did its work well—that, namely, of moving the air briskly and diffusively in any or every part of the hospital, as was desired, the force being less or more, in relation to the space to which it was applied. It was fitted for double and opposite action; drawing off the contaminated air of the interior, and supplying its place by pure air, impelled from the exterior atmosphere. The two processes were occasionally employed in succession, that of exhausting preceding the filling method; but the first was generally thought sufficient, inasmuch as the foul air, which had been artificially removed from within, was instantly replaced, naturally, by purer air from without. The apparatus was erected in the winter of 1842, at Devonport; and when the writer left Hong-Kong, more than three years afterwards, its machinery continued perfect, some slight injuries which it now and then sustained having been easily and effectually repaired by the ship's armourer; and having been worked two or three hours daily during that period. The amount of benefit conferred by the contrivance cannot, of course, be determined, or even estimated, as there was no opportunity of bringing it to proof, by comparison or otherwise. But, as free circulation of air is essential to healthy bodies, and *a fortiori*, to diseased persons, during hot weather, and brought together in masses, it may fairly be presumed to have done good service.



To the successive Commanders-in-Chief, Sir William Parker, and Sir Thomas Cochrane, under whom the writer was employed in China, he begs to offer most respectful thanks, under a sense of obligation for the many acts of personal kindness which he received at their hands, and on public grounds also. They gave ready ear to his representations and professional suggestions. Frequently visiting the hospital, they assured and cheered the patients by their presence and observations; in short, they did everything which the influence of their name and authority enabled them to do, for the comfort, convenience, and cure of the sick. All this might be inferred from the office and character of the men; but it affords pleasure to the writer, and he avails himself of this public opportunity to express it.

To the other officers also of the squadron, military and medical, with whom duty or accident brought him into contact and correspondence, he would offer his sincere acknowledgments, especially to those with whom he was directly associated in the *Minden*, of whom he may be permitted to name Captain Quin, and Mr. Alfred Tucker, the surgeon. It is at once pleasing and melancholy to advert to the merits of the last-mentioned officer, whose valuable services were terminated, last September, at Hong-Kong. He fell a victim to the combined influence of endemic disease, and the laborious, prolonged duties of his office, which no persuasion could induce him to abandon. In him, the medical department of the navy has lost prematurely an excellent member, who, if life had been spared, would have earned fame in

his profession ; and his friends have to mourn the deprivation of a warm-hearted and honourably-minded man.

In connexion with the surgeon, it is right to refer to the assistant-surgeons,* the other professional colleagues of the writer in the Minden ; and of them, too, he is happy to be able to say, that they performed their duties well,—intelligently, and faithfully—the service required of them being such as to demand, at all times, care, skill, and minute attention ; to which, much labour was frequently added. This is a pleasing professional duty, and the pleasure is increased by the feeling, that similar terms of commendation may be honestly applied to the medical officers of the squadron generally. They not only rendered the formal information, and specified returns, regularly to the writer, but supplied him promptly with whatever additional intelligence he suggested as likely to prove useful to the service, entering into his general views readily, and co-operating cordially with him for the benefit of the whole.

To accumulate facts—to augment the store of materials—whence correct practical conclusions may be drawn, is to render solid service to the sciences generally, and not the least so to medicine, which, notwithstanding its importance, and the light which has been brought to bear on it, is still so uncertain in its etiological reasoning, undecided in pathological deductions, and un-

* Messrs. Rogers, since promoted ; Whipple, now acting surgeon ; Sadler, served during the whole period ; Pritchard, Alexander, Patrick, Rae ; Thompson, since dead ; Bowen, since dead.

settled in therapeutic applications. In this belief, and in accordance with his previous practice, the writer noted, from time to time, what appeared to him most worthy of record in China; first, in respect of disease, its nature, treatment, progress, and results; and second, regarding its causes, apparent and probable, whether permanent and necessary, or artificial and capable of being removed.

The notations were made without any fixed view to publication, the contingency of their being laid before the profession, or kept back, was to be determined by what might appear on the same subject before their termination. Had any other person taken the same ground respecting the principal circumstances affecting health, and promulgated similar, or nearly similar, opinions, respecting them and their results, this volume might, and would have been, spared. But amongst the many works respecting China and the Chinese, which have lately issued from the press, there has yet been nothing descriptive of the principal diseases of the region, and their effects on the force employed there. In this state of things, the writer thinks it his duty to give publicity to his observations. Some account of the medical affairs of such an expedition, and subsequent operations, seems desirable for various reasons. The force employed was at one time large; the ground occupied was so new, as to be all but unknown, and peculiar in many of its features; and the diseases, though not new in essence, were also peculiar in many of their features.

The Notes, with their respective dates, are printed in the shape in which they were taken. This mode of

conveying information has the defect of comparative diffuseness, and is necessarily disfigured by occasional repetition. In the present case, however, where the same facts are introduced more than once, the repetition has reference either to different things and places, or to different circumstances, aspects, and effects of things, in the same place—which appeared important to the matter in hand. On that ground especially, it is thought best to publish the Notes as they were originally put down, without any attempt to modify or mend them in appearance; and it is felt, at the same time, which is another reason for making no change, that a more compressed and finished composition deduced from the Notes, would have wanted something of the freshness, and impress of verisimilitude, which naturally attaches to writing in the form of journalism.

Besides, one of the objects kept steadily in view, was the endeavour to trace effects to their causes; and for that purpose, it was deemed essential, among other things, to register the state of the weather, and more notable meteoric phenomena, regularly and repeatedly; thus attempting to gain knowledge of local climate, and its effects on health, which could not be obtained without frequent entries. That part of his plan, the writer carried out completely at Chusan; but it was interrupted, and much deranged, at Hong-Kong. Soon after his arrival there, in June, 1843, his health became so much, and continued so long, affected, as to prevent writing altogether for a while, and to render it more desultory at other times, and suspended by longer intervals than was

intended or desirable; and although there was improvement subsequently, there was often bodily suffering and languor to such an amount, during the remaining period of service, as to interfere with the accomplishment of his objects.

Still he hopes that the outline which he has been able to give of the climate, climatorial influence, and topographical attributes of Hong-Kong, acting on health, will be acceptable.

In sketching the leading forms of disease, and the agents producing them, treatment, except incidentally, and for a special purpose, has not been entered on. What was thought fit to be written on that subject, was reserved for a separate place, that the former, not being encumbered and disturbed by other details, might be as clear as possible; the latter has been condensed as much as appeared compatible with perspicuity.

The chapter on Chinese medicines is necessarily imperfect, as the available sources of information respecting it were very limited, and the writer's time, while gathering what he could from them, was much occupied with his direct duties. The matter besides was, in a great measure, extraneous, and beyond the scope of his primary and principal subjects of inquiry. But, as it is curious in itself, and appeared interesting as illustrative of the state of the Chinese mind generally, through this department of physics, he thought that a little leisure might be employed not altogether unprofitably on it.

Such are the subjects to which the writer deems it proper to allude, in prefacing a publication like this, and

with which he concludes the public account he has to render of his service in China. For the narrative part of it, he claims the credit of fidelity, having inserted nothing which he had not carefully observed, or for which he had not satisfactory evidence. In behalf of the opinions it contains, he asks nothing but candid consideration, and permission to say, that they were not hastily formed. On the whole, he feels that he has added something to the facts of science, thus contributing to the stock of materials, from which useful deductions may be drawn; and he commits his notes to his professional brethren, especially to those serving, or who have served, in China, with the single deprecatory remark, that, had his health been better, they too might, at any rate should, have been better than they are.

NOTE, respecting the use of *buchu* in *flux*. referred to more than once, particularly in the ninth section of the following pages.—It was not previously altogether unknown in such affections, but its employment had been so rare and little known, that its adoption, during the late service in China, may be considered new. Sir John Barrow having received what appeared to be satisfactory information respecting its remedial power in dysentery from non-professional gentlemen, who had served in the East, called the writer's attention to it in a letter, with extracts, which he did him the favour to write, before sailing for

China. Knowing how intractable the disease had proved, and was likely to prove, in that region, the want of success which had too often attended the use of ordinary means, and the importance of adding effectually to their number, the suggestion was gladly received with the view of giving the plant a fair trial, if occasion offered: unfortunately there was much occasion. In addition to the stock which had been supplied on demand, a large quantity was procured at the Cape of Good Hope, its proper soil, and where it grows abundantly. Of the results a sufficient account will be found in the text.

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MEDICAL NOTES ON CHINA.

SECTION I.

*Chusan.—Climate.—Disease, as it appeared in the Squadron.—
Topography.—Agriculture.—Sepulture.—Tinghae.—Disease,
as observed among the Natives.—Miscellaneous.—Chinese
Women's Feet.*

ON the 15th of March, 1842, the writer of these notes sailed in her Majesty's hospital ship, Minden, for China; and having touched at the Cape of Good Hope, Prince of Wales's Island, Singapore, and Hong Kong, after a passage which occupied five months, arrived at Chusan on the 15th of August. That day at 3 P. M., the thermometer stood at 85 deg.; there were light showers with distant thunder and fresh breezes alternating with calms; heat was oppressive to sensation. Found at the anchorage only the Thalia and the Wanderer, the bulk of the sea as well as of the land forces, being in the Yeng-tse-keang, 300 miles north before Nanking.

August 22.—Range of thermometer from 78 to 83 deg. barometer 29. 75; wind southerly, variable in strength, but generally light with occasional calms; showers; lightning, but little thunder. At times, especially when there is a breeze from the neighbouring heights, there is a sudden sensation of chilliness not well accounted for by the thermometer, and the atmospheric influence of the anchorage does not seem congenial to

European constitutions, at least on first entering it. Without any large proportions of disease at present, there is much bodily languor and mental depression, which the apparent circumstances of the place and of the people do not explain, for the aspect of the country is pleasing, with many features of novelty; and the ships' companies are well supplied with fresh meat, vegetables, and fruit.

The principal forms of diseased action, so far as they have been ascertained, are febrile and mucous. The fevers appear to be chiefly periodical—remittent and intermittent—the last being much the most common. Reductive treatment, particularly by general blood-letting, is not well borne, and therefore not often beneficial. Diarrhœal and bronchial affections, particularly the first, are frequent, independently of general fever; and original febrile affections are often complicated with diseases of the intestines and of the air passages.

There has unfortunately been in the Minden, especially within the last two months, a tendency to, and sometimes considerable development of, sloughing ulcer; the tendency became apparent before the ship reached the Cape. A slight injury is succeeded by dark coloured inflammation, tumefaction, partly œdematous, sometimes with vesicular elevations, a condition which runs suddenly into an unhealthy ulcer; with sanious discharge, severe pain, and rapid destruction of parts; at times a phlegmonous abscess or superficial point of inflammation assumes the same action and follows the same course. In neither case, at least generally, is there febrile disturbance or failure of the alimentary functions. The disease has been successfully treated, and cured, with few exceptions, speedily accomplished by very simple means, the first and most essential being the relief of the overloaded and enfeebled vessels by efficient scarification.

What is the cause of this disease in the Minden? Probably, as in most other instances, a local morbid atmosphere, the result of crowding, and insufficient ventilation, with which unvarying diet and high temperature may have co-operated. On the long pas-

sage upwards of five hundred men were located in the main deck, which could not be so well ventilated as that portion of ships of war generally are, on account of the whole deck being planked over to protect the men from wet; but while that object was attained, the not less essential one of efficient ventilation was necessarily interfered with. Reid's ventilating apparatus was diligently worked, but as it was constructed for the hospital portion of the ship the lower and orlop deck, it could exert no direct influence on the main-deck. At the same time, those decks, the lower and orlop, were filled with stores for the fleet, including salted provisions, from which there might be emanations prejudicial to health, and contributing to the vitiated atmosphere which excited the sloughing ulcer. It is right to state that the ship was rendered as clean as her crowded state would permit, and that the pump-well was kept dry and well-aired, through the medium of a tube connected with the ventilating machine.

August 29. Little change in the weather. Thermometer varying from 76 to 84 deg. generally above 80 deg. Wind light, with frequent calms, rain on three days in the afternoon, lightning in the evening, with occasional distant thunder. Prevalent form of disease in Minden, diarrhœa: sloughing ulcer continues, though to little extent; but there are two cases at present less amenable to treatment than any that have hitherto occurred. One hundred and twelve of the supernumerary seamen and marines have been discharged; and the clearing of the ship of stores begins to-morrow. It is hoped that, with reduction of numbers, clearing and thoroughly cleansing the lower deck, and more thorough ventilation, the causes of the disease will be removed.

In the *Thalia* there has been an accession of forty cases during the week, twenty-two of which were catarrhal, and traced to sudden reduction of temperature. Though the fall, measured by the thermometer, has been inconsiderable, seldom exceeding four or five degrees, it has been from a high and relaxing point to one felt to be chilling, and which, with its suddenness, sufficiently accounts for such affections. There has been little of this form of disease

in the Minden, the diarrhœal, arising from the same agency, taking its place.

Sept. 3.—Returns from the North Star, dated the 26th and 29th of August, mouth of the Woosung River, report seven fatal cases of cholera out of thirteen which occurred during the month; of the thirteen, however, only eight are represented as exhibiting the undoubted character of malignant cholera. These occurred on the twenty-first, running their fatal course in eight, in thirteen, and ten hours respectively. In most instances there had been previous diarrhœa or other form of gastric derangement, but it did not appear that there was any alvine discharge, either of fluid resembling rice-water, or fluid of any kind. In the words of the surgeon's report, the prominent symptoms were "livid shrunk features; distressing sensation of heat at precordium, thirst; in one or two vomiting of matter like thin gruel. No purging; tenic spasm of muscles of abdomen, thighs and legs, alternating with excruciating pain in the chest and arms, weak and contracted, or indistinct pulse. In Daniels and Garnet's cases, the body and extremities felt preternaturally hot at, and even after, death." It thus appears that the disease had some peculiar features particularly of a privative nature. The absence of alvine flux in a series of cases of cholera is certainly uncommon. Vomiting, except "in one or two cases of matter like water-gruel, is not noticed among the prominent symptoms; and ejection from the stomach of a fluid resembling cungee water, is a striking feature in malignant cholera, except in some cases where the prostrating power is so excessive as to destroy not only the expulsive but also the secretory powers, and which does not appear to have been the case here, as venesection to the extent of from ten to thirty ounces was practised in most instances. The pulse was better than that ordinarily of the worst form of the disease; and there does not appear to have been the profuse sweating, with the deadly cold surface, nay, in two cases there was morbid heat. There is no remark on the urinary secretion during the progress of the disease; but all the cases exhibited one of the most constant and striking

of the post-mortem appearances of cholera,—“In all, bladder contracted and empty.”

The ship was at anchor, but there is no observation in the report drawn up in haste on her distance from the shore, nature of the nearest land, or state of the weather, further than that the thermometer had fallen to 78° , and the following remark respecting the cause of the disease. “The causes can only be conjectural. Certainly the three fatal cases of the 21st occurred on the temperature falling six degrees, after excessively hot close weather.” The cause may remain, as it is, unknown, but it must be essentially something very different from simple reduction of atmospheric heat; yet, such reduction may act as an exciting cause, or may contribute to the evolution of the essential cause of cholera. It is stated that the ship had been moved further from the shore, and that other judicious measures had been adopted with the view of arresting the progress of the disease.

Sept. 5th.—Little change in the weather, though the heat has been higher last week than during the preceding. Thermometer has not fallen below 80° , highest point, 84° ; barometer, 29.90, which is higher than it has before been since entering the Chinese sea. Rain has fallen twice in small quantities; one night there was reflected lightning. Winds continue southerly, but with more easting; they are irregular in force, generally light, sometimes failing altogether, on which occasions the sensible heat is oppressive. In the Minden, the intestinal affections, chiefly diarrhœal, are not so prevalent as they have been; and there are no new cases of sloughing ulcer. All the former cases are making favourable and rapid progress, except one in which a portion of the right tibia is denuded; the destructive process is arrested, but the restorative is not completely established, and the issue remains doubtful.

The ship is now nearly cleared of the stores, the lower deck ports and orlop deck scuttles are open, which, with Reid's ventilating machinery, will air the lower parts of the ship well.

These decks, as stated above, were completely filled with stores which prevented them from being cleansed during the long voyage,

and they were consequently, on exposure, found in a very dirty state. From the salted provisions on the lower deck, there was drainago of fluid containing animal matter; a considerable quantity of oil had leaked on it; though the ports were caulked in, they did not prevent the admission of water in bad weather. With these and perhaps other less obvious or powerful causes of contamination, acting between decks for more than five months, during which the equator was passed twice, it need not create surprise if they were formed in an offensive condition; nor would it be strange if emanations were formed injurious to health, and contributing at least to the production of sloughing ulcer. It is the only disease which could be supposed to have derived its origin from the ship.

12th.—Rain began to fall on the 6th, and continued, with short intervals, nearly eighteen hours, when the wind changed from a southerly to a northerly direction. Next day the thermometer fell to 72° in the morning. The winds have since been variable, but generally tending more to the north than south. These changes are perhaps preliminary to the setting in of the north-east monsoon, which is said to begin near the autumnal equinox. The weather is cooler and more grateful, the thermometer generally varying from 74° to 80° , though it fell once to 72° , and has risen to 83° . During the rain, the barometer fell three-tenths of an inch, and has continued since with little variation, except the diurnal at 29.90.

The Minden is now clear of surplus stores, and one hundred and sixty supernumerary seamen and marines were discharged last week; she is consequently reduced to her proper complement. The hospital cradles are placed on the lower deck, painting, after a thorough process of cleansing, is going on; and, in a few days we shall be ready to receive the sick and wounded of the squadron.

There are no additional cases of sloughing ulcer; only two seamen on the surgeon's list, one of which is nearly well and the other is proceeding favourably. The last is the case alluded to in a former note, as not having assumed restorative action, though the destructive was suspended, if not arrested. Since that date,

the change has been most satisfactory. Healthy granulations have sprung up over the whole surface, with cotemporaneous subsidence of the elevated irritable margins; so that the ulcerated surface, which ten days ago was black and fœtid, is now beautifully florid, nearly level, and rapidly regenerative of lost substance; cicatrization already going on at the circumference: granulations begin to overlay the denuded bone; but notwithstanding this highly favourable aspect, it cannot be expected that cure will be completed without more or less exfoliation of that tissue.

No further returns from the North Star. There are various reports of severe loss from cholera in the Yang-tsi-Kiang, but no medical account has yet been received.

17th.—On the 13th there was heavy rain during the whole day, with strong breezes from the north. Since that time the thermometer has had a range of four degrees only, viz., between 74° and 78°; wind northerly and pretty strong at times. On the 14th barometer fell two-tenths of an inch, but rose next day, and is now 30°. On the 13th the Hazard arrived from blockading a tributary of the Yang-tsi-Kiang, where she had been employed seven weeks; has now fifteen cases on the fever list, but they are generally very slight,—character not well determined. While employed in the river, she had five fatal cases—three of fever, one of dysentery, and one of pneumonia. In the fever cases, there appears to have been great prostration of the vital powers, and, as a result, dangerous interior congestion, the fatal progress being rapid. No case of cholera occurred.

Sept. 19.—Much rain has fallen during the last twenty-four hours, with scarce any wind. The thermometer fell to 73. deg. in the morning, the barometer continuing at 30 inches. To-day the proportion of sick and hurt in the Thalia is ten, in the Hazard 15, in the Royalist 17, in the Minden (ship's company,) 6 per cent of the employed. Though the hospital is not yet opened, two cases, one of fever and one of ulcer, have been received from the Hazard, as that ship is going on distant service.

The principal form of diseased action in this harbour continue

to be febrile, with tendency to, if not in every instance, complete development of periodic movements, and affections of the mucous surfaces, either of the alimentary or respiratory organs. Besides diarrhœal complaints, there have been many cases characterized by frequent vomiting and purging of watery fluid, with rather severe-termina occasionally, and feelings of faintness, constituting a mild modification of common atmospheric cholera.

In these cases, as well as in the febrile, the common practice in the Minden is to administer an emetic of ipecacuan with a small proportion of antimony at the onset. In the cholera cases, the doctrine of the homœopathists, *similia-similibus curantur*, is partly admitted. Whatever may be thought of the theory on which the maxim is founded, there is no doubt that the practice is often highly beneficial. At the invasion of many febrile affections, involving important organs, and leading, if not speedily arrested, to dangerous, perhaps destructive lesions of those organs, it often acts with an absolutely curative effect. Whether it is capable of effectually checking or cutting short the progress of purely idiopathic fever may be doubted, but even there it frequently exerts considerable remedial power. It is not necessary to discuss the question of the principle by which it operates; whether by forcible vomiting, as a primary act, which, through the agency of the muscles concerned in it merely, clears the first passages, changes their secretions with those of the liver and pancreas, rouses the heart, excites the capillaries, dissipates interior congestions, and sends the blood vigorously to the surface, thus restoring the balance of the circulation which had been lost, which is necessary to health, and which is one of the most striking and a never absent phenomenon in the first stages of all febrile affections; or whether it be by the same process of vomiting, as a secondary act, excited through the agency of the nervous system, which the emetic substance has reached, and so acted on, as at once to move the mechanism of the expulsive effort, and at the same time communicate, through the nervous system, increased

and restorative energy to the vital powers of the body. The practitioners of the last age made much more use of emetics than those of the present; they might employ them without due discrimination, and therefore empirically in some instances; and they might entertain erroneous notion as to the grounds on which they were administered: but however these things might have been, it may be affirmed that emetics do not, at present, hold the rank they are entitled to among therapeutic agents; and that, especially at the onset of many febrile diseases, they are undeservedly and injuriously neglected.

Sept. 22. Chusan, the chief of a large cluster of islands, is situated in the 30th deg. of north latitude, and 122nd deg. of east longitude, distant from the nearest point of the main land of China about six miles. It is twenty miles long by 10 broad, running nearly east and west, with slight inclination to north and south. Generally it is hilly, often becoming mountainous, with interspersed spaces of level land, varying in size, but rarely of much extent.

The principal anchorage, and that almost exclusively resorted to by British ships-of-war, is formed by a crescentic indentation in the south side of the island, and a number of isles opposite, the largest of which has been called Tea Island by the English. The harbour thus formed possesses the first requisites of such locality—security, in a high degree—land, generally of considerable elevation, enclosing it in all directions. It is about 4 miles long, by 2 broad at the widest point, and is divided into an outer and inner harbour, by the approach of an angle of Tea Island to Chusan, and a small isle situated between them, where they approximate most closely, leaving, however, a sufficient channel for the transit of large vessels from one portion of the harbour to the other.

The rocky structure of Chusan, and of the adjacent islands, so far as there has been an opportunity of examining them, is essentially argillaceous. Greywacke, and claystone, often becoming schistose as well as compact felspar, in many places assuming a porphyritic appearance, are abundant. Greenstone is not uncommon.

mon; and in two or three places detached pieces of basalt have been found. Close to the sea in various situations, especially on a small island, called Bell Rock, there is a coarse conglomerate, containing various large fragments of different rocks. On Tea Island there is a variety of schist, containing small defsimanated portions of lime, and which appear to be the caleschist of the French.

The highest point in Chusan does not appear to have an elevation of more than 2000 feet. The summits of the hills, as well as of the mountains, are more or less flattened, and rounded in various degrees; but the declivities are often steep, occasionally precipitous; they diverge towards the sea in a central valley, between the points of which, are found the alluvial levels in which rice chiefly is cultivated. These lands are naturally rich, and much pains and ingenuity are exerted by the people to increase their fertility, especially that they may obtain a more abundant supply of rice, their favourite and almost exclusive portion of farinaceous food. For that purpose much surface water being essential to the vigorous growth of the plant, they form mounds along the beach level, to prevent the rain which falls directly, as well as that which descends from the hills, running off till it has produced its full amount of fertilizing effects. That the requisite quantity of water may be applied, shallow canals are cut at short distances across the rice-fields, from which they raise it, when under the level, by an ingenious instrument, made of bamboo, on the principle of the chain pump, and by this contrivance the ground is irrigated at any time from various sources to the extent required. But during heavy rains the water confined by mounds would accumulate and lie too deeply on the surface, leaving, when it was evaporated and absorbed, no provisional supply. To obviate the first evil, floodgates are formed at proper places; and canals connected with reservoirs, and other means of supply, provide, in great measure, against the last.

Besides rice, their principal cereal plants are millet, maize and wheat, in comparatively small quantities. They have also excel-

lent legumens; and, including sweet potatoes, earrots, a peculiar variety of turnip, onions, and bringals, diversity of nutritious pot-herbs, and esculent roots.

The well-known economical agriculture of the Chines is strikingly manifested in Chusan and the contiguous islands. Every spot of soil, from the sea beach to the highest point of land, is carefully and successfully, if not always skilfully cultivated, without regard to steepness of ascent, or difficulties encountered in manuring and labouring. On the levels a rude plough and harrow, drawn by a single ox, are employed for breaking up the soil. On the hill sides, and steep acclivities, they resort to spade, or rather to hoe, husbandry. But however imperfect the instruments employed, they do their work well. The surface is finely pulverised, and thoroughly cleared of weeds, which, with the smallness of the enclosures, terraced slopes, variety of vegetable products, and diversity of colours, gives to the whole the appearance of a gigantic garden.

As the land is continually under crop, and the same grains are sown year after year in the same places, it is evident that, notwithstanding the natural fertility of the soil, and the favouring influence of the climate, much must be done by manure, in addition to careful culture, to keep up its productive powers. They have neither lime, nor anything deserving the name of farm-yard manure, on these islands, nor do they appear to import any. They, of course, derive no benefit from the recent discoveries respecting manures in Europe, anything in the shape of change, whether it promises improvement or not, having been heretofore altogether alien to the character of the people. In this state of things, it is curious to observe the contrivances they have adopted, independent of irrigation, for fertilizing their fields: it may also be interesting in a hygienic point of view.

Close to the houses, which in the country are grouped into hamlets in the hollows, there are placed large earthen pans, into which are thrown all fragments of decomposable substances, to which are added the desired quantity of fluid, including urine.

With heat varying from 80° to 86° in summer, destructive fermentation proceeds rapidly, and multitudes of maggots are developed, giving life and motion to the loathsome compound. Scarce anything can be conceived more disgusting than the contents of these vessels; but the Chinese disregard their offensive qualities, looking to their useful ones. They arrange them in rows along the public paths, and always place them near, if not in contact with, their houses, that they may at once commit to their keeping every particle of available matter. When putrefaction has proceeded to the point of giving the highest degree of fertilizing power to the mass, it is transferred to buckets, and carried to the fields, often to considerable distances, and when the ground is steep, with great expenditure of human strength; for except when yoked to the plough or harrow, man's labour is not lightened by ox, horse, or other quadruped. Placing a bamboo across the shoulders, with a bucket at each end, they carry what they consider, and what no doubt is to them, very precious stuff, in large quantities, to distant places, and often difficult of access; showing at once the value of productive soil, the industrial habits of the people, and the muscular power of the persons who perform this part of the farm labour. These receptacles of filth, and sources of fertility, are not confined to the country; the towns have an abundant share of them.

At the close of autumn, after the rice crop is gathered, a portion of the soil is sown with a hardy variety of trefoil, which, notwithstanding occasional severe frosts, grows vigorously during the winter. This, which is cultivated extensively, is used almost entirely as a manure, and no doubt possesses powerfully fertilizing properties. When spring advances, and the first rice fields are prepared for the reception of seed (they being planted in succession), the trefoil is partly ploughed down where it grows, partly carried to plots where the preparation is far advanced. Into the last, the soil being finely pulverised, saturated with moisture, and soft, with from an inch to two inches of water, on its perfectly level surface, the trefoil is trodden carefully, and with nice adjust-

ment of quantity to the quality of the land. Under the action of solar heat, which is now becoming high, the thin stratum of water over the submerged highly succulent vegetable matter, gets speedily warm, and decomposition proceeds rapidly below, as might be expected, and as the quick succession of bubbles, and constant explosion on the surface, show.

During winter, they store immense quantities of ice, chiefly for the purpose of preserving fish, which forms a large portion of their food, in summer. The ice is taken almost exclusively from the cropped rice grounds, which, as it generally adheres to the surface of the field, has portions of stubble and earth attached. As the season advances, and the store of the preceding winter is getting exhausted by use and melting, the remainder is spread in the fields in the form of manure. That the portion of earth and straw should, as far as it goes, enrich the soil, is in the common course of things, though it would not elsewhere be thought worth the care which is given it here; but, independent of it (and they are generally knowing in such matters), the Chinese appear to think that there is some special virtue in the water which has been frozen.

Such are some of the husbandry practices of the Chinese, relating to manures, which are peculiar to them, and which probably influence health; and there may be others which have not been observed. It is scarcely necessary to add on this subject, that human ordure is most carefully collected, and valued to a degree which would appear not only ridiculous, but absurd, in other places.

There are but few forest trees either in Chusan, or the islands lying near it. In some of the hollows there are a few fine camphor trees. There are also beech and elms; the tallow tree, and the cedar and cypress; acacias, and some few palmettos. On the unproductive hills, there are dwarf firs; but where the palm and pine grow, as they do here, in juxtaposition, neither can be expected to reach great perfection. Bamboo is common in most situations, and is to the people in the arts what rice is in

alimentation, a substance of almost universal application. Of fruit trees, the most frequent are the pear, orange, and lemon, with a variety of cherry, but none of them so cultivated as to be finely flavoured. The sweet chesnut is also found; and they cultivate the tea plant to some extent, chiefly in the island to which it gives the name.

Since the occupation of the island, the English have made many complaints of the water which it supplies; and some have attributed part of the sickness which prevailed two years ago to its deleterious qualities. It is stated that the ships, on some occasions, were under the necessity of taking water which had irrigated, and passed slowly over rice fields. When that was necessary, as in dry weather, with a large force, it would perhaps be, the water might prove unwholesome; it would, at any rate, soon become offensive, from the decomposition of the vegetable matter it contained. But the well water is not unpalatable, though, in rainy weather, it is not quite colourless, from some admixture of earthly particles; and it does not contain any mineral substance prejudicial to health. It is, in fact, properly speaking, surface water, which flows from the hills, and is collected in hollow pits, having more the character of tanks than wells. But it is evident, from the extent and form of the land, that wells, if sunk sufficiently, would yield abundance of spring water.

In connexion with the frugal habits of the people, and in illustration of some peculiar practices which may not be inoperative on health, their mode of sepulture deserves notice. No people profess so much veneration for the memory of their fathers as the Chinese; and the worship of their tombs is by far the most solemn, and apparently sincere, ceremonial, in the shape of religious worship, which they exhibit. In order to perform its rites, men—(women take no part in it)—who emigrate to distant lands, often return, at much expense and trouble, to the place of their birth; and fond clinging to the memory of the dead, much more than love for its institutions, seems, and is said to be, the strong bond which binds the Chinese to their country. But they have no

consecrated place of interment ; and if they have any rite analogous to episcopal consecration, it must be so simple and easily executed, as to have effect anywhere. At any rate, they have no accumulation of graves in particular enclosed spots ; they do not set apart a few acres for that purpose, and surround them with walls, separating the silent tenants from the living world, and forming a great prison house for the dead. On the contrary, every one chooses the spot he likes best for the final resting-place of those he loved. The country residents bury their dead on their own land, often very close to their dwellings. Few places of interment are observed on the alluvial levels, or productive parts of the soil ; but on the hill-sides, especially in stony barren places, are seen tombs and graves, thinly scattered in rural districts, and more numerous in the neighbourhood of towns. Whether in choosing these upland solitudes—these caves in the rocks—for the spots to which they consign the dust of their departed, they are guided by the merely sordid view of saving the productive soil, which is so necessary to their living ; or whether they have some more exalted and more poetical feeling on the subject, such as separating the remains of venerated objects from the rankness and putrescency of the plains, and by carrying to the drier and purer influences of the mountain sides, bringing them nearer to the sky, is not easy to determine. The former opinion is generally entertained by strangers, probably without sufficient ground. The Chinese are essentially a practical people as to their husbandry and products of the soil, and necessarily so for the mere support of life ; it is, therefore, not unlikely that, in this matter, there is a mixture of motives, care for the living being largely mixed with respect for the dead, and that while attending to the *dulce* in sentiment, they do not neglect the *utile* in practice. But however that may be, the choice is wise, and its effects are anything but unpleasing to the eye.

The tombs are often of porphyry, finished with much minute chiselling, and sometimes in tolerable monumental taste. Indeed, they are the only structures having any claim to be called

ornamental; for the Buddhist temples, though in some places spacious, and not destitute of external proportions, are so crowded with grotesque figures, and contradictory images, that they have no character but of incongruity, communicate no feeling allied to adoration, and debar the idea of their being houses of the living God. The monumental edifices, on the contrary, are, in many respects, chaste and appropriate. Placed on rocky eminences, often in particularly picturesque situations, under the shadow of cedars and cypresses, they present, every here and there, objects of pleasing, perhaps profitable, contemplation. From his cottage door, the widowed husband looks frequently on the last abode of the being whom he most loved. The object is agreeable in itself, and is hallowed, especially to him, by its sacred use. Are not excellent lessons taught by such means? Is not the instruction thus conveyed more impressive than a thousand homilies? The heart is softened and soothed, and must be made better by communing with the spirits of the departed, and is touched to its finest issues by the still small voice of undying love speaking from the tomb. How different is all this from, and how much better managed, than the sepulchral practices in England! Notwithstanding recent and striking reforms in the cemeteries about London, and some other large towns, there is much that is disgusting and deteriorating left in our burial grounds. What could be done generally has been done to render them repulsive; and the place which should attract by its beauty, and improve by its silent teaching, is too often rendered hideous to the eye by a combination of shocking features, and injurious to the health of those living near it.

But tombs are, of course, the property of the more wealthy people. The poorer sort place their coffins, which are made of very thick planks, on or near the surface of the ground, according to the nature of the spot occupied, covering them with thatch, supported by bent twigs. They choose, as for the tombs, dry and barren places; and when the surface is rocky, the coffins are often left partially or wholly unburied, on account of the labour required to make sufficient excavations.

Tinghae, the principal town of Chusan, is situated on the south side of the island, nearly a mile interiorly from the inner harbour, with which there is boat communication by canal. It is walled and is said, when fully occupied, to contain nearly 30,000 persons. The wall is of irregular form, its continuous length being under four miles. When it is considered that nearly all the houses have but one story, and that there is a good deal of garden, and even rice-ground, within the walls, it may be thought that the alleged number of inhabitants must be exaggerated. But the streets are extremely narrow, their breadth being from eight to twelve feet, so that, with a few cases by the doors, there is often great difficulty to get a pony along, while carriages of every description are entirely unknown. When, in addition to narrow streets, it is known that the Chinese houses in towns are generally very wide and much crowded, ten or twelve persons of all ages being often in one room, the exaggeration will not be so apparent. Indeed, in the absence of clear numerical knowledge, after witnessing the mass of human beings huddled together in a small cottage, one would be disposed to allow very wide limits to the population of a Chinese town.

Tinghae is built on a rich alluvial plain, of considerable extent, but touches, and includes part of, a rocky hill in the north-east. At all other points it is bounded by the plain, which extends in an easterly direction about four miles. Over its whole extent, it is almost exactly level, and is very little above the sea at high water. A considerable stream, which runs through it, is dammed at various points, to supply water to the numerous canals by which it is intersected. Here, as in similar situations, rice is cultivated, to the exclusion of most other plants; and the soil is consequently kept in the condition most favourable to its luxuriant growth. Canals are consequently carried close to the walls, and even inside of them, for irrigating the intramural fields, as well as for other purposes.

The water in these canals moves very sluggishly, or stagnates. Their banks are lined with ooze, and abound in the animal and

vegetable products of such places. Notwithstanding the value of manure, the estimation in which it is held, and the receptacles for its collection already noticed, offal is sometimes thrown into the canals, especially those of the town, which has no other drain except an ill-kept gutter in the streets, and is entirely destitute of sewers. When the rice is ripe, irrigation ceases, that the crop may be gathered, and the ground be prepared for another; and soil, which had been flooded or saturated with water for weeks, becomes gradually less humid, and finally is perfectly exsiccated, under a powerful sun.

No natural marshes have been observed in the neighbourhood, nor are they likely to exist to any extent, as the industry of the people, stimulated by their wants, would speedily convert such soil into productive rice fields. But, if heat, moisture, and vegetable matter, excite periodic fevers, as they evidently often, but not always, do, few places can be supposed more prolific of their cause, than the city and plain of Tinghae. Soon after the capture of the place, two years ago, the troops suffered severe loss, chiefly from fever of type and dysentery. But with the essential causes of disease just noticed, and heavy regimental and fatigue duties, insufficient supplies of fresh provisions, and irregularity or excess, which could not always be prevented, acting as accidental causes, the loss, though severe, was not perhaps surprising. Up to the date of the present year, there has been comparatively little disease, and resulting mortality. The causes of increase or diminution of force in endemic disease, are often so obscure, as to be little better than conjectural; and the essential cause is so influenced and shadowed by accidental, or, as they are called, predisposing and exciting causes, as much to augment the difficulty. No conjecture even shall be hazarded here respecting the comparative immunity of this year, so far as the miasmatic, essential agency, is concerned; but in respect of the non-essential cause, whether predisposing or exciting, it appears to possess evident advantages, when compared with 1840; among which, the following may be specified:—The soldiers have comparatively light, unexhausting

duties ; there is less difficulty in preventing irregularity and excess ; they have abundant supplies of fresh provisions ; and they are, in some degree, inured to the climate.

As has been more than once stated in these notes, the prevalent forms of diseased action yet noticed are the primary febrile, the fevers possessing the periodic character, if not, in every instance, exhibiting distinct types ; and various affections, acute and chronic, of the mucous surfaces. Bronchitis is rather common at present, and diarrhœa is prevalent ; but dysentery, according to the definition of nosologists, is not frequent. When, however, it occurs, especially when superinduced on diarrhœa, and assuming a chronic form, it is here, as elsewhere, a very untractable, most frequently a fatal, disease.

The connection of the first general form of disease, the idiopathic febrile, with the topographical character of the place, and its miasmatal exhalations, seems satisfactory. How far the other general form, the mucous, depends on the same agency, is not so clear. Their cause may be, in great measure, purely atmospheric, as acted on by varying degrees of heat ; but those exhalations, partly from their depressing power, perhaps, thus leading to interior congestions, probably co-operate with other causes in the production of the intestinal affection, even when it appears as a primary disease.

The ships of war were, in 1840, as they are now at Chusan, comparatively healthy ; they may be said at present, indeed, to be absolutely healthy. Still these affections, with tendency to prevalence, have the same general character as in the regiments. Though anchored at a considerable distance, two or three miles from the plains of Tinghae—and also at a considerable, though much shorter distance, from smaller pieces of alluvial land under rice cultivation, the air around them appears to be contaminated in an inferior degree, by exhalations, more or less diluted, from those lands. Here, then, is a constant, though inconsiderable, cause of miasmatal disease, in the season, to which ships' companies are exposed ; and there is an occasional, but more energetic one, from service in boats along the land, and on shore.

Specific exhalations from certain marsh and marsh-like soils, act powerfully in depressing or subverting the vital powers, occasioning dangerous congestions in the affections to which they properly give rise, and communicating an adynamic character to diseases which they do not excite. In accordance with this, which seems to be a general law, it is observed that the majority of morbid affections which occur here are distinguished by weak vascular reaction, and a pervading aspect of debility; that reductive treatment, especially by general blood-letting, is ill-sustained; and that there is sometimes sudden and unaccountable sinking of the powers of life. It may be that the feelings of depression and debility, formerly alluded to as affecting the people on first arrival here, when there was no formal complaint, were connected with the general condition of the atmosphere; it being, even in the harbour, and at some distance from the sources of miasmata, deteriorated, in some respect, by a slight admixture of the paludal poison.

Little can be offered positively by the writer respecting the diseases of the natives, excepting such as are subjects of inspection. It is said that their principal fatal diseases are the same as those affecting strangers, namely, idiopathic fevers, chiefly periodic, and various affections of the mucous tissues of the alimentary and respiratory organs. This, of course, is likely; but it is not likely that they act with equal power and fatality in them, as the natives of malarious districts do not suffer so severely from its morbid agency, as persons unaccustomed to it.

Cholera is reported, and no doubt, from the authority on which the report rests, occasionally produces great havoc, exciting, as elsewhere, much alarm and consternation. The Chinese doctors, like many learned men in other places, deny the endemic origin of the disease. They will not admit that anything so horrible should be the spontaneous product of their own soil, and circumstances; but endeavouring to push its origin from their own shores, and pretending to trace it through intricate and unexplored paths from its native soil, to the part where it was first landed, they

hope to fix its birth-place in the wilds of imagination, or of obscurity and distance. Although an original inhabitant of their own country, and doubtless of long duration, they assert that it was unknown till about forty years ago, when it was imported, with other repudiated commodities, by a junk, from Siam. From the same place, Labat maintained that yellow fever proceeded by a circuitous passage to the West Indies ; and, strange as the opinion was, modern men of learning have not hesitated to adopt it. This is strange ; and it is curious that the celestial sophist and the French monk should have united, without consent, to give Siam a bad name, branding it as the fertile birth-place of two of the greatest scourges of the human race. For this, the chief reason would appear to be, that they mutually fixed on a place which was unwilling, and not very able, to rebut the calumny. Reason, in either case, had very little to do with the conclusion ; but the Chinese had the greater show of it in their favour : for, in the first place, their distance is much less, and, in the second, cholera is not unknown at Siam, which is more than can be affirmed of yellow fever.

There is no difficulty in giving some account of the external diseases of the Chinese, which, being very prevalent, are seen everywhere, in the streets and in the fields. The most conspicuous are scrofulous affections, ophthalmia and its results, and cutaneous affections, including elephantiasis, which is not, however, properly a cutaneous disease at the commencement, the first part especially affected being the sub-cutaneous cellular tissue, the skin suffering secondarily, and in an inferior degree.

For the frequency of scrofula, the diet and domestic manners of the people may be supposed to account ; but why they should suffer so severely from diseases of the eye, does not appear. Judging from the state of the organ in various instances of partial and total blindness encountered in the streets, it seems that purulent ophthalmia must be very common. Yet here there is neither the dazzling light, nor the flying sand, to which it has generally been ascribed, at the onset, in Egypt and elsewhere. Like other mucous surface so prone to disease here, that of the

eye may be affected by atmospheric changes of temperature, influenced by miasmata ; and this is probably true in other places.

Primary diseases of the skin are very prevalent, particularly scabies, which presents itself often in the most inveterate form, to an incredible extent, among people pretending to civilization, and the patient philosophy with which it is borne is surprising. Scarcely any pains are taken, indeed, either to arrest or cure it ; and whole families, not in indigence, are affected by it for long periods, often to the end of life, apparently with little inconvenience, and with no feeling of its being opprobrious.

Although dyspepsia cannot be classed among external diseases, it speedily impresses its character in the aspect and demeanour of its subject ; and a large proportion of the Chinese are deeply and indubitably stamped by it. The shrunk, pale cheek—pale, in defiance of its Tartar tan—the withered, leaden lips, the lacklustre eyes, feeble slouching gait, and tremulous demeanour, of the unhappy dyspeptic, are met at every corner, and in every house. Muscular men are, no doubt, often seen, especially among the field labourers and boatmen ; but, looking at the people as a whole, few of them exhibit a good combination of the attributes of perfect health.

Diet, and the habitual practices of the inhabitants, contribute powerfully to the frequency of most of their maladies, and are not without influence on them all, in connection with the malarious influence of the locality. Their food consists almost exclusively of vegetables, especially rice, with salted fish, badly cured, and often in a semi-putrid state. The large quantities of weak tea drunk, and opium-smoking indulged in as often as possible, combine to produce a cachectic condition of the body. Opium, however, is only an occasional indulgence, as a luxury ; tobacco is considered a necessary, and is universal among both sexes. When otherwise unoccupied, they never drop the tobacco-pipe, smoking from morning till night, and drinking largely, at short intervals, a miserably weak infusion of coarse tea. With innutritious, unwholesome food, and vicious indulgences—cribbed, damp, ill-

ventilated apartments, and want of personal cleanliness, will concur to occasion diseases of the lymphatic, cutaneous, and alimentary organs.

Their agricultural practices, and the manner in which they dispose of their dead, have been noticed as curious, and worthy of commendation ; but the personal and domestic economy of the Chinese, so far as it has been observed, is anything but a subject of praise. Of water applied to the skin, the poorer sort, at least, make scarce any use. Washing, indeed, of every kind is a mystery to them. They have neither body linen, nor any garment allied to it ; nor do they wear washable clothes of any kind. Coloured fabrics, generally blue, of wool or cotton, are universally worn, without change day or night, from the time they come from the tailor's hands till they will hold together no longer. The doors of the houses are almost their only means of ventilation, the rooms being small, and, in most instances, excessively crowded. Privies everywhere present themselves in the open streets, their contents being carried to the fields during the day, along public thoroughfares, in open buckets. The stench from these receptacles, whether fixed or moving, added to that from stagnant canals, from narrow lanes, and crowded, unaired cabins, in hot weather, is excessively offensive. In short, everything, without and within, concurs to show that the inhabitants are essentially a filthy race.*

* In support of this severe allegation, and not, it is hoped, in breach of the laws of hospitality, the following anecdote is communicated :—

A small party of English officers was entertained by a great man at Ning-po—so great, that, if not the very highest, he was one of the chief mandarins of the province, which is one of the richest in the empire. He lived in a large house, was robed in silks and furs, the weather being cold, and was numerously attended by military and domestic retainers. The repast, which corresponded to English luncheon, consisted of a variety of viands, amounting to twenty-four, most of them new, and nondescript, but many of them deliciously flavoured. The eating-room, one of a suite, was spacious ; the attendants were numerous, attentive, and adroit ; and, appetite being good, everything was proceeding most pleasantly, when the writer was startled by

Elephantiasis, judging from the number of cases casually seen, is as common here as at Rio de Janeiro, or even at Barbados, where it is so prevalent as to have given rise to one of its names—*Barbados-Leg*. It is generally, and there is reason to believe justly, considered an endemic disease in the proper meaning of the word. Yet, on examining the topographical and appreciable climatorial constitution of the three places, few points of agreement can be discovered between them, though in some peculiarity of these things in conjunction with the modes of living and personal practices, the causes of endemic disease must consist. In the latter particulars, it is true, in diet and domestic management, there is considerable similarity between some classes of persons, in the positions named. Both at Rio de Janeiro and Barbados, elephantiasis prevails principally among the negroes, who, like the poorer Chinese, subsist almost exclusively on vegetables, with a portion of salted fish. Like them, they are also very often dirty in their persons, their cabins, and their clothes. These things may have much influence in producing the disease, but it is evident that they are not of themselves sufficient; for other classes and races of men, who feed as poorly, and are not more cleanly, are not affected by it.

Respecting the nature and rational treatment of elephantiasis, there is fortunately less doubt than on the subject of its origin. It consists essentially in inflammation of the subcutaneous cellular tissue, which leads to effusion, the effused matter becoming imperfectly organised, occasioning tumefaction, and impairing more or less the motive power of the limb. Repeated attacks of inflammation, effusion, and consolidation, produce, if not arrested, in the course of time, generally many years, the highly enlarged, tuberculated, scaly leg, resembling very closely that of an ele-

the host, whom he sat next, turning up the enormous sleeve of his tunic to show a thick surface of itch on his wrists, and call attention to the crop between his fingers. The affection was evidently one of considerable standing; and he made the exhibition without a feeling of its indecency, or that he was submitting contentedly to a sordid disease, of which he might easily have been cured.

phant. As the disease advances, the functions of every tissue, especially of the skin, ligaments, and bones, are injured or destroyed, by increasing pressure, till, beginning with the separation of the toes, disorganization proceeds to a fatal issue.

The appropriate treatment, in the first stage of the disease, is that which is best fitted to reduce inflammation; and of the means which it embraces unquestionably the foremost in power and value is the local abstraction of blood, either by incision or puncture, though the first is generally to be preferred; the skin should be passed through, and the inflamed tissue freely laid open. Much blood will flow, together with serum and lymph, and immediate benefit be experienced. General treatment should not be neglected, but this, the local practice by the knife, should be considered paramount. It must be repeated as required, and should be resorted to after the clearly inflammatory symptoms have subsided, to give free issue to effused fluid, the result of inflammation and the pabulum of the hideous deformity which so constantly supervenes. A Chinese peasant, with the disease in a slight though chronic form, who has come frequently on board the hospital ship for medical assistance, has derived much benefit from treatment by incision; in his case, the affection being inconsiderable and of long standing, the incisions were confined to the surface.

Associated with elephantiasis, there is occasionally an affection of the same general character which attacks the genitals. It begins in the scrotum, but soon affects the other parts, producing immense enlargement, agglutination, and confusion of the different tissues, eventually destroying their entire structure. The morbid mass sometimes acquires such dimensions as to descend far below the knees, and requires the limbs to be kept wide apart to make room for its encroachments. In one instance, not at Chusan, the urethra was found by the author, eighteen inches below the seat of the tumor. It was discovered only on examination, in front of the tumor's uniform surface, all appearance of the penis being lost. In this affection, as well as that of the limbs,

it is probable that early, often repeated, and free incisions, would prove highly beneficial.

The Chinese, from the pitted faces so frequently seen, suffer much from small-pox, and venereal disease in various forms is not unfrequent in their sea-port towns.

On the 23rd of September, inspected the *Calliope*, which anchored here, on passage to England, the first return ship since the signature of the treaty, under the walls of Nanking, on the 27th of last month. Her sick list amounts to sixteen, half the number being cases of fever,—five of which are intermittent; they have neither much force nor other point of interest. She has thirty-one invalids on board from the ships at present in the river; of which only three cases are dysenteric, there being but a single case of intermittent fever, though these have been by far the most prevalent forms of disease in the Yang-tsi-Kiang. There is no case of hepatic disease, and with two or three exceptions, the diseases of the invalids are unimportant. The ship has been five years in commission, partly in South America and partly in China. Of her original officers, only one remains in her, and she carries to England little more than one-fifth of the crew by which she was first manned.

On the 24th the wind shifted to south, the thermometer rose to 81° and the barometer fell two-tenths of an inch; but the wind is now, the 26th, at north-west, with the barometer close to 30, and thermometer varying between 73° and 78°. *Thalia's* list is reduced to thirty-two, the largest proportion of one disease, ten being ulcer. There is nothing either in the *Royalist* or *Minden*, the only other two ships besides the *Calliope* in harbour, deserving notice.

September 30th. Through the kindness of the surgeon of the *Belleisle*, who obtained the preparation at Chin-Kiang-foo, the subject, with a great many others, having destroyed herself, the writer had an opportunity of examining the mutilated foot of a Chinese woman dissected, but with its natural articulations remaining, so that the bones retained the position they had occupied during life. It is that of a person from twenty to thirty

years of age, and appears to have been of the ordinary artificial form, and nearly, though perhaps rather over the average size ; certainly the writer has seen several considerably smaller. Its extreme length is four inches and a half.

The process by which the curtailment and deformation are accomplished is, of course, pressure, but the manner in which it is applied, judging by the different accounts given of it, is not always the same. It must be forcible, and far greater than can be obtained from bandages, which are worn at all periods of life, and long after the growth of the foot is fully arrested, which is probably, in most instances, before the girl is five years old. The principal effects of the treatment are to prevent the proper development of the parts, distort the organization, and in great measure destroy the functions of the foot. The extended sweep of the ankle, as well as the more limited motion of the metatarsal joints, is lost, the articulating surfaces being firmly ankylosed.

In the preparation just seen the os calcis, instead of its natural broad base, and posterior rough projection, has a conical form downwards, and slopes forward from the leg, so that a straight line projected beyond the foot, from the inner aspect of the tibia, falls not before, but behind the extremity of the bone. The bones of all the toes, except the great one, are bent under the metatarsal, at their points of junction, lying parallel to, and in close contact with them. The natural arch of the foot is much deepened by pressure applied to its extreme points, and the forced elevation of the tarsal, and tarsal extremities of the metatarsal bones. Its depth in the present instance, measured from the inferior aspect of the bones, is fully two inches. Its depth of arch, in reference to the length of the foot, looked at as a skeleton, and without regard to its use, does not, it must be owned, give it an unsightly appearance. But the arch is not seen without dissection. It is so filled with fatty matter, that the sole is a flat surface ; and the foot of a Chinese woman, in this respect, bears no resemblance to that of the Arabian, which, when helped a little by imagination perhaps, allows the brook to flow through its hollow without wetting it. It more re-

sembles, indeed it much resembles, from its short, stumped wedge-like form, that kind of club, in which the foot is generally turned inwards.

That a whole race should take so much trouble, inflicting and undergoing so much pain to deface and damage the body, is strange. It is the most universal and curious kind of mutilation practised in any country, and shows how dangerous it is to permit fashion leagued with false notions of beauty to tamper with the wholesome operations of nature. There is little doubt that the practice began at first, in a small way, and with slight results, in the desire of doing what they might by artificial contrivances, to help in the formation of a small well-arched female foot, and that it crept on with increasing force, though by scarcely perceptible movements, till it reached its present universal extent, and power of, at once, destroying the beauty of the organ, and all but annihilating its functions. While the foot is stunted and crippled, the leg wastes, loses its symmetrical roundness and waving outline, and, though other parts of the body are still in a state of vigorous growth, shrinks and withers like a palsied limb. It need scarcely be added that such a condition of the lower extremities must interfere materially with the power of locomotion. Walking is difficult and painful, the gait being uncertain and waddling: the maimed object totters, is in continual danger of falling, and beyond short distances in girlhood, gladly avails herself of the help of a stick. Yet all this is done and suffered, sacrificing at once beauty and usefulness in the absurd ambition of completing nature's operations, and surpassing the scheme of creative wisdom.

SECTION II.

Sick of 98th Regt. received into hospital, their miserable condition, and principal diseases.—Question of the origin of the sickness in that corps.—Disease in particular ships.—Prevalence generally excessive.—Miscellaneous notes.—Sketches of cases.

ON the first of October, there were received into hospital fifty soldiers of the 98th Regt., suffering from intermittent fever, dysentery, or protracted diarrhœa, and the results of cholera, the three first forms of diseases being in most cases combined; they have just arrived from the Yang-tse-Kiang, where they were taken ill, in the Belleisle. In all these cases, there is exhaustion and emaciation, in many of them to an extreme degree, with organic lesion, which is evidently beyond the reach of art; in a considerable number the powers of life are reduced to the lowest point compatible with existence, and cannot proceed much further. There are besides cases of sloughing ulcer, laying bones bare in the extremities, and bed sores of the worst description. In short, it seldom happens that a larger proportion of wretched beings present themselves, or that the destructive effects of miasmatic poison are more strongly manifested than in this regiment. The fifty cases received into hospital were the worst, but in most of those remaining in the Belleisle, the same effects in different degrees, but in all painfully, are unequivocally marked. The search for a

healthy looking man is vain ; everywhere, stretched helplessly on deck, suspended in cots and hammocks, or tottering unsteadily a few paces, are seen the subjects of wasting disease, with the sallow earthy complexion, shrunk features, emaciated frames, feeble limbs, and despondent looks, so sadly characteristic of miasmatic poisoning.

The regiment entered the river little more than three months ago, upwards of eight hundred strong, having at the time a very moderate sick list ; but seventy rank and file are at present capable of performing the lightest duty. It is known that one hundred and seventy have died ; but the total number of deaths till this date is not known, part of the regiment being still on the river on board a transport, employed as an hospital. But knowing the loss that has been already sustained, and looking at the condition of the portion of the regiment which is now here, it may be foretold that half of the men who entered the Yang-tse-Kiang in health, will never again be fit for military service. This is a very formidable loss to be suffered in so short a period by disease, no fatal casualty from battle having occurred. Other portions of the land, as well as the sea force, sustained considerable injury and loss, but none of them anything like this corps. Why is the comparison so much against it ?

The subject is one of great and abiding importance as well as interest, and should not be passed over without bringing all possible information to bear on it ; the writer therefore thinks it his duty, while the principal facts are before him, to devote a sentence or two to its discussion. He is not aware that, on landing, and during the operations on the shores of the Yang-tse-Kiang, the 98th Regt. were exposed to any apparent cause of disease, from which the other troops were exempted. This being the case, the inquirer necessarily turns to the precedent condition and circumstances of the corps, and he finds in them what appears sufficient to remove much of the difficulty. It left England last December on board the *Belleisle*, in which, including detachments, of other corps, women, children, and the ship's company, were em-

barked altogether close on one thousand three hundred persons. The ship had most of her guns, of which she was fitted to carry seventy-two, taken out, to increase her capacity, and suitableness for transporting troops; and she was fitted up in the best manner for the accommodation of passengers. That every available use was made of the means supplied at Plymouth Yard, where the ship was equipped for this service, and that judicious regulations for the preservation of health were steadily and strictly enforced, may be concluded from the fact, that not more than two or three deaths from acute disease occurred, during the very long time they were embarked, among the troops. But no amount of skill, care, and appliances, can be expected to counteract the poisonous agency arising from the crowding of masses of men in small spaces during long periods. What may be borne with, at least, comparative immunity, during a few weeks, is likely, if extended to many months, to act destructively. It is evident that ventilation, so essential to vigorous health, and of which any defect deteriorates with accumulating power in relation to its continuance, cannot be adequately accomplished. This is one great evil resulting from undue compression of persons, especially in the lower parts of a ship, where, from form and structure, there is a necessary tendency to stagnation of air. But besides crowding and imperfect ventilation in this case, crossing the equator twice, and consequent exposure to high degrees of atmospheric heat, very few fresh meals could be procured, during a voyage which lasted upwards of six months. It is strongly in proof of the general excellence of the naval regulations, the victualling, discipline, clothing, and general economy of ships of war, that such a voyage in such circumstances was accomplished, without the eruption of scurvy or some other malignant epidemic disease. How different would have been the results one hundred or even fifty years ago! But though regulations can accomplish much, and are evidently very powerful, they are not omnipotent; they can modify, and for a while ward off, but cannot eventually resist the immutable laws of nature. The effects of crowding, accumulation of animal exhalation,

tions, imperfect ventilation, uniform diet, and monotonous manner of life, may for a certain period be counteracted by various well-planned and well-executed contrivances; but they will not, beyond a certain period and to a certain extent, be found harmless. In the case under notice, though they did not excite disease on the voyage, yet by the constitutional debility and deterioration which they induced, they rendered the body highly susceptible to the action of the causes of endemic disease on the shores of the Yang-tse-Kiang, to which the soldiers were exposed on their first landing. It would be a waste of words to argue that the circumstances of the protracted passage were highly fitted to occasion the condition of the body in question, or that this condition is one of extreme danger, being that of tendency in excess to disease from external causes of all kinds applied to the body; and it is reasonable to conclude that on the excessive susceptibility, the excessive sickness and mortality of the 98th Regt., as compared with other regiments, in great measure depended. On the same grounds, it may be concluded that, if the men, at the completion of the voyage, could have been landed for a while, when, with fresh air, moderate exercise and fresh provisions, they might have conjoined healthful amusements, they would at the same time have gained constitutional vigour, and lost susceptibility to disease before entering on active field operations, and thus have escaped the excess of disease and destruction, which all but annihilated their efficiency on first disembarking in China. It is stated, as strongly confirmatory of the above opinion, and is a very important fact, that the men longest quartered on the orlop deck, where ventilation was particularly defective, suffered in a much higher ratio than the others on landing.

October 2nd. Received twelve patients from the *Belleisle*, with diseases generally of the same character as those affecting the 98th Regt., re-embarked in her after the signature of the treaty, at Nanking, viz. periodic fevers, intestinal affections, and their results, with ulcer. The mortality in the ship's company has been inconsiderable, compared with that among the troops; and their

comparative immunity may be traced to the different circumstances in which they were placed in the Yang-tse-Kiang, and on the passage from England, especially the former. They were affected by the miasmatic poison at a distance from its source, and consequently in a state of comparative dilution; the soldiers, while quartered on shore, were exposed to its direct and concentrated force. At the same time, they had only the regular, unexhausting duties of the ship to perform; while the soldiers passed at once from a life of ease to fatiguing service, in full regimental uniform and heavily armed and accoutred, under a burning sun, the thermometer standing near 90°. These were the chief relative circumstances in favour of the seamen on the shores of the Yang-tse-Kiang, and they were doubtless the most influential; but some of those affecting them on the voyage, such as their occupying the main deck, where they were less crowded and better ventilated, and being allowed rations larger by one-third, had unquestionably considerable influence and contributed to their comparative exemption from disease and death. Yet the ship, when she anchored here two days ago, had one hundred and ten of her crew amounting to 276 on the sick list. Of the whole number, sixty-eight were cases of periodic fever and twenty of intestinal disease. On the same day, received two patients by the Royalist, one from the Childers, and one from the Dido, both in the Yang-tsi-Kiang, with similar affections; and on the 3rd three patients from the Thalia and two from the Pelican, bearing also the same general character.

The Apollo, which arrived yesterday, the 2nd, from the Yang-tse-Kiang, has eight cases, out of fifteen men on the list, of intermittent fever. The Pelican, from Chapoo, has nine cases of ague and flux, out of twenty-four now on her sick list. The latter place, which is on the sea coast, to the south of the Yang-tse-Kiang, appears to have much the same kind of surface, vegetable productions and agriculture, as the low, alluvial, flooded, or irrigated shores of that great river, and similar situations in China, all of which abound in two principal forms of diseased action,

namely, periodie fever, and affections of the mueous surfaee, especially of the alimentary organs.

October 4th.—Fine cool breeze from the north; sometimes strong. The thermometer has fallen to 68° the last two mornings, and has not risen above 73° . Barometer pretty steady at near 30° . Scarce any rain has fallen during the week; there has been no thunder, nor lightning; and the weather gives the feeling and the impression of being healthy. The northerly monsoon, and, with it, the cool season, has finely set in.

By the quarterly nosological return of the Belleisle, just received, it appears, that during the quarter ending the 30th of September, the number placed on the sick list was in the ratio of 156 per cent. of strength, which would give, in the year, the enormous proportion of 624 per cent. sick of the employed. Out of 423 put on the list during the quarter, 162 were cases of intermittent fever, 136 of intestinal flux, 13 of dysentery, 123 diarrhoea, and 15 of constipation; making 313 of the prevalent forms of disease in China, viz. periodic febrile and mucous, independent of cholera. Of the latter, there were 17 cases, seven of which terminated fatally. Considering the amount of disease, and that malignant cholera constituted part of it, the mortality was not very high, two deaths occurring from dysentery and from hepatic disease; making, with those from cholera, ten fatal terminations, which gives the proportion of 3.6 per cent. mortality of the employed, during the quarter.

The Apollo, a frigate, equipped at the same time, and for the same purpose as the Belleisle, and having proceeded with her from England, has been employed during the same period in the Yang-tse-Kiang. The number placed on her sick list during the quarter, has been in the ratio of 130 per cent. of the employed, which, though high, is not so high as that of the Belleisle. Of the whole number admitted, viz. 129, the half were cases of periodie fever and intestinal disease, exclusive of seven cases of malignant cholera; two of the latter terminated fatally. The proportion dead, as well as attacked, is lower than in the Belleisle.

With a fatal case of apoplexy, there were three deaths during the quarter, which give the ratio of three per cent. mortality of strength for the period. The troops carried by the *Apollo* to the Yang-tse-Kiang, suffered little, compared with those carried by the *Belleisle*.

If it be asked, on the principles stated above, respecting the ultimate effects of crowding, &c., in the troops carried by the *Belleisle*, why, in the *Apollo*, which was employed in the same way, and for the same period, the detrimental effects should not have been nearly so great in the troops, nor so great in the ship's company, it is sufficient to answer, as applied to the troops, at least, that the latter ship did not carry those she embarked to the Yang-tse-Kiang, having disembarked them at Hong Kong, and taken other detachments thence to the river. It is not now known what the subsequent condition of the troops landed from the *Apollo*, at Hong Kong, was; but whatever it may have been at the time, it would not afford fit ground of comparison with that of the 98th in the Yang-tse-Kiang, the circumstances of the two sections of force being there different. Besides, it should be remembered, in the study of this important hygienic subject, that the effects of compression on small and large bodies of men, even if the space occupied have exactly the same size in proportion to their relative number, are not equal; 600 men will suffer less than 1200 occupying double the extent of space, and every circumstance attaching to the two portions of space being the same.

The *Rattlesnake* was also employed during the same period, on the same service, in the Yang-tse-Kiang; but she had not lately arrived from England. The whole number placed on her sick list, during the quarter, was 57, being in the proportion of 130 per cent. nearly of her strength; and of them, 45 were cases of periodic fever and flux; 26 of the former, and 19 of the latter. There was no death from either form of disease, the only fatal case being one of apoplexy.

The *Jupiter* also was employed in the same way, in the Yang-

tse-Kiang, for the same period, during which she had 152 placed on the sick list, no more than four remaining from the preceding quarter. This number gives nearly as large a proportion of the employed as the Belleisle, viz. 154 per cent. for three months; she was not, like the Belleisle and Apollo, recently from England. Of her whole number of cases, no fewer than 135 were of periodic fever and intestinal disease; 79 of the former, and 56 of the latter, the latter being divided into 32 diarrhoeal and 24 dysenteric. The last form of disease has been proportionately more frequent and severe in the Jupiter than in any of the three preceding ships, three cases of dysentery having terminated fatally. These, with a fatal case of pericarditis, make four deaths, and give the ratio of four per cent. mortality, for three months, of strength. These four ships are men of war, with reduced force, employed in transporting troops. There is a fifth in China, but she (Sapphire) is yet in the Yang-tse-Kiang, and no report has been received from her.

The North Star was employed during the quarter, near the mouth of the Woosung, where it empties itself into the Yang-tse-Kiang, about 40 miles from the sea. She did not ascend higher, and did not, like the four preceding ships, form part of the force before Nanking. She suffered less from intermittent fever than they, having had no more than 15 cases; she had 49 cases of diarrhoea, and one of dysentery. Malignant cholera, of which she had 14 cases, six of them terminating fatally, has been noticed in a former paragraph. Altogether, she had 155 cases placed on the sick list, and eight deaths, during the quarter. Her exact strength (she is absent) is not known; but it may be assumed, from her regulation complement, that of the number victualled, nearly 100 per cent. were treated, and 5 per cent. died.

October 8th.—During the week, 82 patients have been received into the hospital, 14 of whom have already died; and there is no hope of life being long protracted in a considerable number of the remainder. Of the 14 fatal cases, 12 were in the 50 men of the 98th regiment, among whom especially, it was evident, there were

many with whom any attempt at curative treatment would prove altogether unavailing. Irreparable lesions, principally in the intestinal tissues, had produced such hopeless prostration, as to leave no room for anything but mitigating measures. What could be done by them, consisting generally of anodynes, astringents, and restoratives, was done, but that, of course, was not much.

There is considerable reduction of temperature, with strong northerly winds. Rain fell copiously on the 8th, communicating sensations of chilliness. The thermometer fell to 65° in the morning, but rose to 72° in the afternoon, with bright sunshine. The beneficial effects of change of weather on health, are not yet very apparent in this harbour. There is little lowering of the sick lists, and, in many instances, there has been recurrence of intermittent fever, connected, perhaps, with cold nights following hot days.

In the *Endymion*, employed during the quarter in the Yang-tse-Kiang, the proportion sick was not so large as in the ships referred to above; it approached nearest, but was under that of the *North Star*. Altogether, 317 cases were placed on the sick list, being at the ratio of 90 per cent. nearly of the employed. She had a much smaller share of intermittent fever than the other ships on the same service, nine cases only occurring during the quarter. But she had a large proportion of intestinal disease, the number of cases being 121, of which there were 79 dysenteric, 28 diarrhœal, and 14 choleral; of the first, eight terminated fatally. During the quarter, there were 13 deaths, from all causes, giving the ratio of three per cent. nearly, of strength.

The *Modeste*, also employed in the Yang-tse-Kiang during the quarter, has had a larger sick list than any of the ships noted above. No fewer than 249 cases were admitted for treatment, being in the proportion of 191 per cent. sick of the employed, in three months. Of the whole number, 107 were cases of intermittent fever, and 23 of intestinal flux, chiefly diarrhœal. Nearly the half of her complement is now under treatment; five-sixths are cases of intermittent fever, generally slight and convalescent.

Notwithstanding the immense proportion of disease, no case has terminated fatally during the quarter. She is under orders for England.

The *Dido* was employed in the Yang-tse-Kiang, during the greatest part of the quarter, and had as large a proportion of sickness as the *Modeste*, the number placed on the surgeon's list being 357; the number employed not 200. The number of cases of intermittent fever was 204, being more than her entire complement, and a larger proportion than that of any of the ships noted above. There were 38 cases of intestinal disease, chiefly diarrhœal. At present, there are 88 cases, nearly the half of her strength, on the sick list; of which, 57 are intermittent fevers, generally slight, and giving way. The crew was much employed in boats, on various duties, close to the shores of the river, which probably occasioned greater prevalence of fever in her than even in the other ships. Of the whole number treated, five terminated fatally, being in the ratio of 2.7 per cent. of the number employed for the period.

October 15th.—Since the 8th, there have been eleven deaths in hospital, eight among the men of the 98th regiment, making 20 fatal cases out of 50 received a fortnight ago. All the eleven deaths, except one, were from dysentery; the other fatal case was from phthisis. In these cases, the progress and termination of disease have corresponded with the opinions formed respecting them when first seen. Chronic dysentery, always tedious, often, in its least aggravated form, very intractable, is, when it has produced a certain extent of structural change, utterly hopeless.

The weather of last week has been fine, the thermometer ranging between 63° and 70°, the barometer standing pretty steadily near 30°, though it rose two-tenths above, and is at present falling. There has been no rain, the sky has been cloudless, and the wind generally light from north.

The *Blonde* was employed during the quarter, with the force, in the Yang-tse-Kiang, and had, during most of the period, a very

large sick list, 421 cases being entered for treatment; the proportion of the employed sick was 130 per cent. This, though a large proportion, is not so large as that of some other ships similarly employed. Of the whole number, 246 were cases of intermittent fever, 103 quotidian and 143 tertian; she had also 59 cases of remittent, making 305 cases of periodic fever. There were 30 cases of intestinal flux, 26 diarrhoeal and four dysenteric. Three cases terminated fatally, which is in the ratio of not one per cent. of strength. At the beginning of October, 138, being more than two-fifths of her complement, were under treatment; since that date, there has been considerable reduction; but yesterday there were still 115 on the list, mostly cases of convalescence from ague.

The Childers, similarly employed during the same period, had still a larger proportion sick; it was, indeed, larger than that of any other ship in the same service, large as most of them were. She had 300 placed on the surgeon's list, being in the proportion of 250 per cent. of her strength. This is an excess of disease, which is seldom witnessed, and which, when it happens, seldom passes without inflicting a heavy loss. Yet only one case—a dysenteric—terminated fatally. There were 124 cases of intermittent—40 quotidian and 84 tertian—besides three of remittent fever. The cases of flux amounted to 100, of which 30 were diarrhoeal and 70 dysenteric. At the beginning of October, there were 46 men on the list, 40 of them with tertian intermittent.

In the Vixen steam-vessel, similarly employed during the same period, the ratio of sick was nearly 100, that of dead being 2.5 per cent. of her strength. Of the total number of cases, there were 88 of intermittent fever, and 23 of flux, besides 13 of constitution; making 124 of the prevalent form of diseased action.

October 22nd. — Received into hospital 49 men of the 98th regiment, with disease, and in condition, similar to that of the 50 received three weeks ago. Almost all are suffering severely from intermittent fever of considerable duration, or flux, single,

combined, or alternating. In most of the more protracted cases, there is tendency to, in many developments of, dropsical effusion. A very considerable number are in this last stage of existence, and most are in a state utterly hopeless as to ultimate entire recovery, and efficiency as soldiers. Of the 50 received on the 1st instant, 27 have died, and two are near death; 12 have rejoined the regiment, advanced in convalescence. Of the 11 who remain in hospital, few will ever be fit for duty.

There has been a large, though not an equal proportion, of the same forms of disease, among the seamen and marines received into hospital. Of the dysenteric cases, some were in a desperate, many in a doubtful state, from the continuance of the disease, and danger of organic injury on their admission. The cases of intermittent fever have generally been of shorter duration, more simple, and more tractable, than those of the troops. There have been, and still are, cases of bad ulcer, either in a sloughing state, or that immediately resulting, often associated with bad health and miasmatic poisoning, rendering it doubtful whether radical cure, without mutilation, can be accomplished.

October 24th.—The weather in the last week has not been so uniformly fine and invigorating as in the preceding. The range of the thermometer has been nearly the same, and the barometer has scarcely fallen under 30 inches; but the sky has often been gloomy. Rain, though in no large quantity, has fallen on three days, and the wind has been less steadily from the north. Notwithstanding, there has been generally improvement, though slight, in the health of the ships' companies in harbour.

The *Algerine*, employed during the quarter in the Yang-tse-Kiang, had upwards of 200 per cent. sick of her strength, though she lost only one man by death. Of the whole number entered on the surgeon's list, viz. 116, there were 67 cases of ague, and 30 of intestinal flux, independent of four cases of cholera.

In the *Sapphire* (a troop ship, the fifth of her class, and alluded to in a preceding page,) serving the same time in the same river, the ratio sick, and the forms and proportions of disease, were very

similar to those of the Algerine. The number treated was at the rate of more, but little more than 200 per cent. of the number on board. There were 84 cases of periodic fever, and 62 of intestinal flux, making, independent of two of cholera, 146, out of 156, the total number treated. There were three fatal cases, being in the proportion of something more than four per cent. of the employed. The entire loss of this ship, the permanent added to the temporary, was the greatest of any employed in the river. She arrived from England with the Belleisle and Apollo.

The results of service for the same period, in the same place, on the crew of the Columbine, were of the same general character, though the proportion of disease, as well as of ague and flux, was not so large; and of the whole number, no one terminated fatally. The ratio sick was 120 per cent. of strength. Of the total number of cases, viz. 148, there were 31 of ague and 75 of flux, being more than two-thirds of the whole.

October 31st.—During the last week, the range of the thermometer has been greater than in any equal period since arriving at Chusan. On the 29th, it rose to 70°, and fell, in the course of the 30th, to 59°, the wind having shifted from a southerly direction, with bright sunshine, to a northerly, with strong breeze, cloudy sky, and rain. There have also been more than ordinary variations in the barometer. With the south wind, it fell to 29.80, rising on the following day, when the wind changed to north, to 30.40. Generally, there is reduction of sick lists in the ships, amounting to 18, now in harbour; and further reduction, with progressive reduction of atmospheric heat, may be expected. The atmospheric change will act beneficially on certain cases in hospital; but in too many of them, so much injury of organs essential to life has been sustained, as to place the subjects beyond the reach of any kind of healing agency.

November 3rd.—In the Cornwallis, also employed in the Yangtse-Kiang during the quarter, and the last returning from it, the proportion sick was much lower than in many other ships; yet it fell little short of 100 per cent. of the employed. She had 144

eases of periodie fever, and 156 of intestinal flux, making, independent of 40 of cholera, 300, or more than half of all entered for treatment, which amounted to 577, and of which 107 were catarrhal. But while the proportion sick was smaller than that of other ships, the ratio of mortality was higher than in most other ships. There were 23 fatal cases, 12 of which were from malignant cholera, being at the rate of four per cent. nearly of strength for the three months. On the 1st of October, 194 men were on the surgeon's list, 70 of whom were then confined to bed; but a large proportion of the whole, especially of those affected with periodie fever, were convalescent.*

November 7th.—The weather through the last week was very similar to that of the preceding one. Rain fell sparingly on three days. The thermometer was, on the whole, higher, and the barometer lower, there having been a larger proportion of light southerly wind. Notwithstanding, the sick lists of the ships in harbour have been falling generally, some of them fast.

On the 4th, there was a case of malignant cholera in the *Thalia*, which terminated fatally in five hours, the subject having been in perfect health till the time of attack. As yet, it is a solitary case among the ships of war, though there have been some cases among the Indian troops quartered near the town, and the merchant seamen in the inner harbour. The subject in this case was one of a party from the ship, employed for three days previously about a junk, which had sunk with copper on board, close to the shore of the inner harbour, and which they, with considerable labour, partly under water, had been getting up and landing. From that shore, the cause of the disease, whatever it may be,

* The proportions sick and dying, in this and some other instances, can be considered as an approximation only, though, it is hoped, a pretty close one, to correctness, as the complements of ships often vary much in a short time. This is more particularly applicable to the *Cornwallis*, which being the flag ship of the Commander-in-Chief, had disposable men frequently passing through her.

was, there is every reason to believe in this case, derived ; it was one of great intensity, and not destitute of useful information, for it goes to prove the purely terrestrial origin of cholera, its incommunicability by person, and the power of accidental agency—pre-disposing causes—in its production. The place where the party was employed possesses all the visible qualities of a malarious soil ; the patient died in the ship among his messmates where there was no restraint, and no other person was affected by the disease, and all the other men employed in the same duty have heretofore at least escaped it.

November 8th. Early this morning a man died in hospital, whose case deserves notice. He, a marine, æt. 30, was admitted in the afternoon of the 6th instant, labouring under symptoms of dysentery of some, but not great severity. It is stated in his written case that he had exhibited symptoms of sinking in the Cornwallis, from which however he had recovered when he reached the hospital ship. When first seen and prescribed for, although the pulse was accelerated, and there was frequent dysenteric purging, the subject being stout and muscular, and the disease of short duration, no apprehension of extreme danger was communicated. On the morning of the 7th, the symptoms and general aspect had undergone no visible change, but as there was some abdominal tenderness on pressure, leeches were applied in addition to the other means employed for the intestinal affection, and which consisted chiefly of moderate, frequently repeated doses of calomel in combination with opium and ipecacuan. Had taken a scruple of calomel just before he was sent from his ship. When seen at 7 P. M., he was without pulse at the wrist, the whole surface was cold and drenched in sweat, and it was evident that the sinking was not only rapid but fatal. In defiance of internal stimulants and the application of external heat, with continued friction, the sinking proceeded, no reaction could be excited, and death took place at one o'clock this morning. The body was inspected eight hours after death, when the following appearances presented themselves : superficial ulcer in the rectum, and congestion of that part of the

intestines and of the colon, extending but slightly into the inferior portion of the ileum ; there was a small quantity of serous effusion in the peritoneum, and there were pervading marks of congestion there and in the pulmonic organs ; but there was no other structural injury in the abdomen, chest, or pelvis. The lesion noticed would have been considered sufficient to account for the fatal issue, if found in an exhausted subject and after slow sinking, but not to explain the cause of death, happening in the manner and at the time it did. What explanation can then be offered ? The man, till two days before his reception into hospital, had been employed some weeks ashore near the point of the inner harbour, where the seaman who died of cholera in the *Thalia*, was working immediately before his attack. Coupling this fact with the more striking features of his disease, although many of the symptoms which are considered characteristic of malignant cholera were absent, the inference arises that the choleral poison, diluted or modified in some way, had entered the system and co-operated powerfully with the dysenteric affection in causing death.

November 14. During last week the weather has been fine, and seemed to possess all the elements of atmospheric salubrity. No rain fell ; the wind was northerly, varying in strength, but generally amounting to a good breeze, the sky being more frequently clear than clouded. The thermometer fell to 58° , and has not risen above 65° , and the barometer has stood closely to thirty inches. Yet the sick lists of the ships have not fallen ; taking them together they have increased, though to no great extent, nor have the new cases been serious. Most of the increase has been from recurrence of intermittent fever and flux. The two forms of disease are intimately connected : the first is apt to become habitual, and both, especially in persons whom they have long affected, are readily re-excited, sometimes by causes of disturbance which are either so slight in themselves or seem so inefficient as to pass without being observed. In hospital, also, some of the patients, who had been making favourable progress, have retrograded, but in most of them the organic injury existing, and resulting constitu-

tional debility, leave no room for surprise at the occurrence of that change, however disheartening it may prove to the patient and mortifying to the practitioner; indeed the chilly nights lately experienced may be expected to act detrimentally on them.

There has been a second case of malignant cholera in the *Thalia*, but the impression was not so severe as in the first; treatment has been so far successful, and the subject is considered out of danger. The disease has not appeared in any other ship of the squadron, and it should be observed that no other is anchored so near to the plain of Tinghae and the inner harbour. Cases occasionally occur still in the merchant ships stationed there, as well as among the troops; but neither the number, nor proportion, nor the proportion of resulting mortality, is known, as there are no official returns, and the pressure of other duties prevents personal inquiry to any extent.

On the 15th, a man died in hospital, an outline of whose case is noted, with the view of showing the obscurity which often involves miasmatal disease, its varying aspects, and the difficulty encountered in detecting, during life, the organic lesions which it occasions. The subject, in this instance, was a seaman, æt. 26, received into hospital on the 20th of October, from the *Cornwallis*, for the treatment of ulcer. In the account which accompanied him, it is stated that he was put on the surgeon's list on the 5th of September, labouring under intermittent fever, which, however, appears soon to have ceased, ulcerative disease setting in as the febrile disappeared. The ulcers proceeded steadily to cure in hospital; and though he was considerably emaciated, with sallow unhealthy complexion, no general disease was detected. On the 23rd, there was, for the first time, bronchial cough and fixed pain between the left sixth and seventh ribs without disturbance of pulse. The cough, with mucous expectoration, continued moderate, the thoracic pain sometimes ceasing, sometimes shifting its place, but seldom being long absent from the spot first referred to. On the 27th, there was a well marked accession of intermittent fever, the only one suffered in hospital, for though

he had afterwards sweats every other day, he never had either rigor or heat of surface. The stomach became irritable on the 30th, and continued more or less so through the remainder of the disease. Dysenteric symptoms set in on the 3rd of November, and there was, at the same time, tympanitic enlargement of the abdomen, tormina, and tenderness on pressure, following, with the clean, smooth, shining tongue so frequently seen here, and so constantly betokening danger every where. From this period, he lost ground rapidly, and fatal sinking was evident after the 8th; the urgent symptoms being irritability of stomach, incessant purging, chiefly of watery mucous matter, insatiable thirst and jactitation, the tongue continuing clean, smooth, and glazed, but becoming fiery red.

The following is a record of the post mortem inspection. The lungs and heart were healthy; so was the stomach. In the spleen, which was adherent to the stomach, there was an abscess at its cardiac extremity, containing three ounces of well-formed pus, interiorly to which the organ was honey-combed, and so softened throughout as to break down under the lightest pressure. The liver presented no appearance of disease, except of slight hypertrophy, on superficial inspection; but there were several encysted small abscesses in its substance, the gall-bladder was full of healthy bile. The small intestines, excepting a spot or two of increased vascularity, were healthy; but in the larger there was much structural change. The colon was thickened, of a purple colour, many spots being denuded of the mucous tissue, and others deeply ulcerated. In the rectum, there was still deeper disorganization; indeed its whole lining surface was in a state bordering closely on gangrene, being quite livid, and so lacerable as to tear on being slightly touched. In this case, the precise condition of the pectoral symptoms, though ill-defined, of periodic fever, and irritability of stomach, might have led to suspicion of severe affection of the spleen, though such things, and much more strongly marked, often exist without implicating or denoting any morbid condition of that organ, and there was nothing else to

draw attention to it or the liver. Till the 3rd of November, there were no symptoms of intestinal disease, nor did they become conspicuous till a few days before death.

With a similar view, the subjoined sketches of the case of a sailor, æt 19, belonging to the North Star, is given. From the statement which was sent with him, it appears that he was placed on the surgeon's list, on the 27th September, on account of catarrhal and diarrhœal symptoms, which are reported to have yielded readily to the remedial means employed; but while there was no appreciable disease, the man continued to lose flesh and strength. The remainder of the case which accompanied him is given in the surgeon's words:—"On the 22nd of October, he first complained of incessant thirst; and he had observed that he made water more frequently and in larger quantity than usual. He has complained chiefly of pain and oppression at precordia, particularly during the night, and inappetency. The tongue has been occasionally red, preternaturally; bowels open; generally three dejections in 24 hours; no swelling of ankles; pulse firm; no great pain in loins. The most urine he has passed in 24 hours has been nine pints, of a pale straw colour, and nearly inodorous. Quinine and sulphuric acid were continued, for a time, without any beneficial change. Lately, he has taken a combination of rhei pulv., with magnes. carb., and a little opium. For some days, the quantity of urine has certainly been less, never exceeding six or seven pints; but there is no permanent improvement, and sometimes there is irregularity of pulse."

When he was received into hospital, on the 7th of November, the following note was made in his case book:—"Emaciation and debility extreme; complexion clay-coloured; tongue red and glazed; pulse slow, full, and intermitting; much thirst; no appetite. 8th. No purging, but the tongue is red and dry, with much thirst. 9th. Within the last 14 hours, has discharged two quarts of urine, which has a healthy colour, and ammoniacal smell; debility progressive. Vespere: frequent vomiting; pulse

feeble; great prostration. 10th. No saccharine matter in a portion of urine evaporated yesterday; stomach tranquil, and he feels more comfortable. 11th. Bowels torpid—aspect, slightly improved. 12th. Bowels have acted moderately, and there is marked change—improvement for the time, at least—in his appearance. 13th. Says he is quite well, except that he is weak, and it is difficult to determine the cause of his weakness; the tongue, though much improved, is still too clean and flaccid, and the thirst is greater than that of perfect health—perhaps, beyond which there is at present no indication of disease. 14th. Little to be noted; has had two stools in the night. 15th. Frequent purging. 16th. Purging continues frequent, and the debility is extreme. 17th. At six A.M., died.”

Body examined six hours after death: no disease in thorax; stomach, liver, and spleen, normal; lining membrane of jejunum and ilium too vascular; colon so disorganized as not to bear its own weight, without rupture; ulcers perforating the mucous and muscular tissues in the ascending and transverse portions; rectum in a similar state; bladder and ureters normal; kidneys slightly hypertrophied, perhaps, and more vascular than common. The subject had served in the Yang-tse-Kiang; and the case is believed to have been one of miasmatic poisoning, though much masked in character and organic results.

It is not thought necessary in this, and other such instances, to specify the hospital treatment adopted, as the object is to notice the nature of the disease, and not its relation to remedies.

INSPECTOR'S REPORT OF THE HEALTH OF THE FLEET ON THE EAST INDIAN AND CHINESE STATION, UNDER THE COMMAND OF VICE-ADMIRAL SIR WILLIAM PARKER, K.C.B.
COMMENCING THE 1st OF JULY, AND ENDING THE 1st OF OCTOBER, 1842.

Names of			Present Number		During the above period					Intermittent Fever		Continued Fever		Catarrhus	Pneumonia	Phthisis	Dysentery	Rheumatismus	Venereal Disease	Scorbutus	Ulcers	Wounds and Accidents	Febrile Catarrh	Phlogosis	Ophthalmia	Hepatitis	Diarrhoea	Colica	Cholera	Erysipelas	Dyspepsia	Other complaints
H. M. Ships	Surgeons	Surgeons' Assistants	On the List	Con-fined to Bed	Put on the List	D.	D.D.	Sent to Hos.	Inva-lided	Quoti-diana	Ter-tiana	Syno-chus	Typhus																			
Endymion	C. Alison, M.D.	Thomas Hart	54	20	317	269	13	..	1	..	9	34	..	12	..	..	79	8	..	2	41	10	65	7	1	..	28	14	1	1	1	4
Thalia	R. Douglas	J. B. Nicholson, M.D.	18	5	233	230	..	..	..	9	..	4	..	39	Bronchitis 4	..	3	4	1	..	21	18	..	27	..	2	61	10	..	..	8	22
Herald	R. A. Bankier, act.	W. H. Willan, act.	6	1	60	72	3	..	..	1	4	19	..	5	Bronchitis 2	..	6	..	..	..	1	..	..	1	..	..	16	..	..	..	5	
North Star	A. Sanderson	W. M. Saunders	10	..	155	147	8	..	3	6	9	3	..	11	1	..	1	4	..	..	10	4	Ephem. 22	10	..	..	49	4	14	..	1	5
Belleisle	T. W. McDonald	E. Heath, act.	110	24	423	340	10	..	3	140	12	3	..	10	1	..	13	5	..	1	61	10	Ephem 28	5	..	4	123	15	17	..	1	19
Apollo	W. Graham	W. Bine	13	1	129	113	3	..	..	..	32	13	Remittent 7	20	2	..	3	1	..	..	5	..	..	6	..	..	25	1	7	..	1	6
Jupiter	..	W. Crofton	44	17	152	108	4	..	..	72	7	..	..	2	..	..	24	1	..	..	2	3	..	3	..	..	32	1	1	..	..	4
Rattlesnake	..	E. N. Cree	1	..	57	55	1	..	..	18	8	5	..	..	..	..	2	..	..	..	1	1	..	..	..	..	17	1	..	..	..	4
Modeste	O'Neil Ferguson	J. S. Crawford	43	1	249	206	..	..	..	3	104	49	..	7	..	..	4	1	..	..	4	12	..	9	1	3	19	2	2	..	11	18
Pelican	J. N. Ballard	J. C. Corbett	24	..	141	155	1	..	..	6	5	1	..	26	..	..	6	2	..	..	11	2	..	4	..	2	69	1	..	..	1	2
Dido	A. Donaghoe	J. Simpson, M.D.	88	1	357	280	5	1	9	204	..	11	..	38	..	..	1	..	..	..	34	12	..	5	2	1	32	5	..	..	3	9
Minden	A. G. J. Tucker	{ J. W. Mustard W. Rogers D. B. Whipple F. R. Sadler }	24	11	260	281	1	..	..	10	..	30	..	25	Bronchitis 1	..	..	4	..	..	28	26	..	58	5	1	28	18	..	4	7	15
Blonde	R. H. Broun	J. Simpson	138	..	421	302	3	..	..	103	143	1	Remittent 59	6	..	1	4	1	..	..	8	25	Ephem. 14	5	1	4	26	3	1	..	2	13
Childers	J. Plimsol	— Roe, M.D.	46	..	300	248	1	..	..	40	84	6	Remittent 4	22	2	..	70	4	..	..	7	3	..	3	1	3	30	6	1	..	1	10
Vixen (steamer)	J. Naulty	W. Webber, M.D. act.	7	1	199	185	5	..	1	85	3	..	19	22	..	..	1	2	..	..	11	4	..	11	2	..	22	Obstipatis 13	..	..	1	3
Columbine	A. Cross	J. T. Veitch, M.D.	43	17	148	114	..	..	..	16	15	9	..	4	..	..	..	3	..	..	2	4	..	5	..	1	75	..	1	..	7	6
Harlequin	C. R. Nutt	J. W. G. Golden, act.	18	2	137	125	..	..	..	1	3	..	..	17	1	..	..	..	..	..	10	1	..	7	..	..	81	..	1	..	2	13
Cornwallis	D. King, M.D.	C. P. Blake, M.D.	194	70	577	..	23	..	10	107	37	..	Remittent 12	107	..	3	1	..	..	11	37	13	..	15	..	..	158	29	40	..	..	8
Driver (st.)	W. Houghton	..	75	..	402	338	1	..	1	72	100	5	..	9	..	..	..	11	..	..	22	16	55	35	..	..	35	10	Biliosa 15	..	..	21
Wanderer	J. Gordon	W. T. Alexander	2	..	76	76	..	..	..	..	..	1	..	43	..	..	..	4	..	..	..	7	..	7	..	..	13	..	..	..	..	1
Starling	..	J. Davidson	4	..	58	54	1	..	..	23	5	..	Remittent 5	4	..	..	..	..	..	..	..	..	..	1	1	..	11	..	..	..	3	5
Algerine	..	W. H. Monk	20	6	116	94	1	..	1	39	27	..	..	6	..	..	5	..	..	..	1	8	..	..	..	..	25	..	4	..	..	1
Royalist	..	J. C. Miller	8	1	78	87	1	5	3	2	2	3	60	2	1
Sapphire	..	T. J. Layton, M.D.	47	16	156	109	3	77	Remittent 7	2	..	2	3	1	1	52	..	2	..	1	1

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SECTION III.

General view of disease in the fleet—Its extent and prevalent forms—Origin—As seen in hospital—Flux ; its chronic form, and intractable nature—Organic changes—its cause—Ulcer ; its connection with periodic fever—Meteorological notices interspersed—Sketches of cases, with remarks.

IN addition to occasional notices, in some preceding pages, of the amount and prevalent forms of disease in individual ships, it will not be uninteresting to take a general view of the subject, looking at it in relation to large numbers. The annexed tabular exposition refers almost exclusively to the force serving in the Yang-tse-Kiang, and embraces the returns from all the ships received till this date, the 19th of November.* The four ships included, though not employed in the river, were stationed near its mouth, or at Chusan, where they were exposed to similar, but less concentrated malarious influence. The most striking points in the table, are the high ratio of sickness, the comparatively low ratio of death, and the great proportion of the whole number of cases constituted by two general forms of diseased action, namely, intermittent fever and intestinal flux.

The entire number entered on the medical lists, from the 30th of June till the 1st of October, was 5,201, of which no more than

* Reports from two other ships have been sent in ; but as they were employed on a different part of the coast, namely, Amoy, they are not included.

88 terminated fatally. The proportion dead of the attacked was, therefore, one in 59. There were 1,638 cases of intermittent fever, and 1,313 of intestinal flux, diarrhoeal and dysenteric, independent of cholera, making 2,951, or about two-fifths of the whole number treated. On the 1st of October, there were 1,037 remaining on the sick lists, being more than one-fourth part of the entire force. This has a formidable appearance, and is not without serious meaning in reality; for though the deaths had been comparatively few when the reports were made up, it is known that a number have happened since; and considering the insidious, too frequently intractable, nature of the prevalent forms of disease, it is nearly certain that many more must take place shortly, and that in many others, not terminating fatally within a few weeks, so much organic and constitutional injury will be inflicted, as to render the men unfit for service, the subjects of protracted bad health, and ultimately, at no distant period, of death.

Whatever question there may be as to the origin of so much intestinal disease here, and in the north, during the late operations, there is no mystery respecting that of periodic fever. All along the flat shore of the great river Yang-tse-Kiang, as well as in all similar situations visited in China, where there are not natural inundations, the inhabitants do their utmost, and exert much skill and industry, to convert the low lands into what may be termed artificial swamps. The profitable culture of rice, which is the principal food of the people, requires much surface water, either stagnant or moving very slowly; but the means adopted for its accumulation and distribution having been described generally in a preceding note on Chusan, and being everywhere nearly the same, as well as their effects, need not be repeated. By the means employed, they contrive to keep the level lands under, or saturated with, water, during the rapid growth of the rice plant; and leave them in the same state when cultivated for other plants, through a great part of the remaining year; but whether this is with a view to profit, is not apparent. In the months of July, August, and September, the period in which vegetation, whether of culti-

vated or wild plants, is especially exuberant, and to which this note refers, the mean height of the thermometer may be stated at 80°, in the portion of the river occupied by the British force. Here there appears to have been abundant materials for the production of periodic fever, from which the seamen, as well as the soldiers, have suffered, are suffering, and must still suffer, so much. The wonder is, that, with such high degrees of heat acting on such a soil, they were so generally some type of well-defined intermittent; cases of remittent fever, with much precipitancy and fatal force, were not nearly so numerous as might have been expected; indeed, they were very rare.

Of the 88 deaths, 30 were from malignant cholera. Under the general head of cholera, 107 cases were treated, 15 of which are designated "bilious" in the reports. In five cases, the nature of the attack is doubtful: but 87 of the whole seem to have exhibited the diagnostic symptoms of the deeply-destructive form of the disease. The ships which suffered most were the Cornwallis, Belleisle, and North Star. Out of 14 ships in which cholera is noted, the first had 12 out of 40; the second, 7 out of 17; the last, 6 out of 12, fatal cases, making 25 of the 30 deaths from this disease. In some instances, it had rather peculiar features; but, in all the fatal ones at least, it possessed the unequivocal character and pervading aspect of the truly pestilential form of the malady called Asiatic, or spasmodic cholera.

The proportion of cases noted as phthisical was small, no more than nine of the 5,201 appearing under that head; but diagnosis, especially on board ship, in the first stage of the disease, is often difficult; and more than one case of true phthisis have terminated fatally in hospital, which were not admitted under that name. On the other hand, it is probable that all the nine cases recorded as phthisical, did not strictly deserve the appellation. But, however that may have been, it may be concluded, so far as this service has given an opportunity of judging, that true tubercular phthisis is not a common disease in this particular region:

Ulcerative cases were not proportionately so numerous as they

often are in naval service ; but they were, in some ships, of a bad and intractable description. In the *Endymion*, *Dido*, and *Belle-isle*, especially, (the *Minden's* ship's company had also a considerable number,) they sometimes assumed a violent sloughing form, producing extensive destruction of soft parts, and involving, if not promptly arrested, the ligamentous and osseous tissues.

The actual strength, at the beginning of July, of each ship, has not been precisely ascertained, nor her mean force for the quarter ; but, assuming that it was nearly equal to their complements, adding supernumeraries where they were known, and concluding that those who were known to be serving in some ships, though their number were not determined, would compensate deficiencies in other ships, it may be reckoned the 24 ships in the table had, at the beginning of the quarter, a force above—but little above—4,200 men. On comparing this number with the amount of sickness, its most prevalent forms, and resulting mortality, the three following points present themselves prominently :—

First : The number sick were in the ratio of 124 per cent. of the employed ; consequently, the proportion dead of the attacked was less than of the employed.

Second : Periodic fever—intermittent—was in the proportion of 39 ; intestinal fluxes of 31 ; being, together, 70 per cent. of the employed.

Third : The proportion dead of the attacked was 1·7, while of the employed it was two per cent. nearly.

The last ratio, being equal to eight per cent. per annum of strength, is not, perhaps, very formidable in itself, and seems almost insignificant, as the effect of so much disease. Still it is large, when compared with the current mortality of the navy for many years past. The annual average throughout the service, for the seven years preceding 1837, was 13·8 per thousand of the mean number employed ; consequently, the loss sustained during the three months, and on the service in question, was five times as much as that usually resulting from service in the navy.

But, as was hinted above, the fruits of the seeds sown on the

shores of the Yang-tse-Kiang, were then only partially reaped ; a number of men have already fallen, and many more have yet to fall, from disease contracted there. Seventy-seven men have already been invalided, and sent to England, in the hope, but faint in many cases, that change of climate would act remedially ; in the certainty that it could do little, if anything, for many others ; and that a considerable proportion would die on the passage. Upwards of sixty men will be sent home in the Apollo shortly, who, though not formally invalided, being exchanged for healthy marines, are now unfit for service, and will, in many instances, long continue so, if not permanently.

Since the 1st of October, the period to which the calculation refers, till this date, it is known that, in different ships, thirteen deaths have occurred ; and 29, out of 128 men belonging to the squadron, have died in the hospital of the Minden, making 42 deaths, additional to those of the quarter, in seven weeks. Besides the 29 deaths in hospital among seamen and marines, there have already been 45 among soldiers, out of 105—99 of the 98th regiment, and six of the Royal artillery—admitted since the 1st of October, making 73 fatal cases out of 223 received into hospital. Taking both descriptions of force, the proportion of the admitted dying in seven weeks, is not much short of one-third, that of seamen and marines being nearly one-fifth, that of soldiers nearly two-fifths. Both are large ; the last is so in an excessive degree ; but neither is nearly so great as it will eventually prove.

Intermittent fever and intestinal flux being the prevalent forms of disease on service, it was to be expected, as has happened, that the same forms of disease should make the great majority of cases received into hospital ; these, with ulcers, have constituted more than nine-tenths of all admitted. With very few exceptions, the periodie fevers and fluxes have been complicated with each other, often co-existing, but more frequently alternating ; and this complication has made a principal difficulty in adjusting the means of treatment ; for those fitted to be useful, and promising utility in the fever, having generally proved injurious in the flux,

it happens constantly that, on the subsidence of the former, the latter sets in, to yield in its turn, and again to recur, till the subject is worn out, the exhaustion being generally associated with an immense amount of organic injury. In a great majority of instances, the immediate cause of death is traced to the intestinal affection.

This affection, to which the general term "flux" is here applied, is so various in its forms, assuming so many appearances in a short time, that it is difficult to define, or even describe it briefly, and in such language as shall fairly represent it. As seen in hospital, it has almost always been chronic, often of long duration, and, in a great many cases, recurrent, the subjects being emaciated and debilitated in an extreme degree. In one case only has general blood-letting been practised; in few could the local abstraction of blood even be carried any length with advantage. In short, the period for active or curative measures had passed; and all that remained was the melancholy duty of mitigating the most urgent symptoms, and rendering the certain progress to dissolution as little distressing as possible. In writing thus, it is not meant to make any reflection on the conduct of the Surgeons who treated the disease in the first instance; on the contrary, it is believed that they discharged the laborious duties devolving on them in the best possible manner, bringing to the task, not only unwearied care and kindness, but also much professional talent.

It has been stated that the period for active treatment was past before the patients reached the hospital. It is doubtful whether, in very many cases, energetic measures could have been borne, or applied beneficially, in any stage. In all forms of disease hitherto observed on these shores, the morbid impression is markedly asthenic; and the morbid manifestations are characterised by depression of the vital powers; in evidence of which, it may be noted, that the single case of blood-letting, in a case of dysentery, alluded to above, was the only one in which it has yet been practised in hospital. This, assuming the practice to have been right,

is a striking fact, and strongly in proof of the position just laid down. Then the flux, in the hospital cases at least, was seldom, if ever, simple and primary, being constantly, as already represented, associated with periodic fever, to which it, in most instances, supervened. It appears most frequently to have had a diarrhoeal character at the onset, often becoming dysenteric in its progress; but it is often difficult to trace the line of demarcation between the two affections; and it is probable that irreparable injury had been done to the mucous lining of the intestines, before the supervention of well-marked dysenteric symptoms, in many cases.

The alvine discharges have generally been very frequent, often incessant and uncontrollable, varying greatly in different cases, and in the same case, from time to time, even in the course of a day. They have been watery simply, or watery, with threads, filaments, or lumps of mucus, with or without blood; mucous, muco-purulent, muco-sanguineous, and sanguineo-purulent; and mesenteric. Though generally very fluid, if not watery, there has been great difference in the degrees of consistence, sometimes approaching that of health, while, in every other quality, they were the very reverse; and their colour, independent of that communicated by blood, has been of every hue, from milky white to pitchy black. They have resembled gruel, melted butter, gravy soup, yeast, and boiled spinage; they had a close likeness to well-formed animal jelly, of various colours, but the most frequent being a bright bottle-green. Mixed with many kinds of morbid secretions, but most frequently with the gelatinous, there have been multitudes of small grains, like millet seeds, or uncooked sago, giving the mass much the appearance of gooseberry jam. Often there has been a substance, more or less indurated like marl, in the fluid dejections; but scybalæ were never seen. There has also been great difference in the smell of the dejections, still more difficult to describe; but it will be enough, on this subject, to say that the fœtor is generally overpowering. The above were the most constantly observed, and easily described characters of the discharges by stool, but

there were many others, and many modifications of them, which it would be very tedious, if possible and profitable, to delineate intelligibly.

Connected with these discharges, there has been distressing tenesmus in many cases, while, in many others, it has been entirely absent, and pain has neither been very constant nor severe; indeed, pain, in the strict sense of the word, has not been an urgent symptom. Frequently there has been partial, occasionally complete paralysis of the sphincter ani, leading to involuntary discharges from the intestines, while the mind was undisturbed, and other muscles were completely under the power of the will. In such cases, and in different degrees, they have been very numerous, with the accumulation of peculiarly foetid evacuations, the extreme exhaustion, and cadaverous aspect of the patients, as humiliating a spectacle, and as hopeless a field of practice, have been presented, as can easily be imagined. The impression communicated by their appearance when first seen—the conviction that cure was impossible in many cases, improbable in most—has been fully borne out by the proportion of fatal issues already experienced; the physical necessity for which, if the phrase may be used, has been established by the *post mortem* examinations instituted.

These examinations have presented in all cases, though in different degrees, extensive disorganization of parts, the seat and general character of the destructive change being remarkably alike in the whole. Ulceration has been all but universal, and obviously in most instances of long standing, the ulcers being scattered more or less thickly over the whole of the rectum and colon, of various forms and superficial dimensions, generally circular, and from the diameter of a split-pea to that of a shilling or more, the surface being purulent, hæmorrhagic, ragged, or clean and smooth, like the effect of excision; of various depths, sometimes destroying the mucous tissue only, sometimes the muscular also, being generally arrested by the peritoneal, but occasionally perforating it. In most cases, the rectum has been much thickened and in-

durated, in many assuming a semi-cartilaginous character; in other cases, it and the colon have been attenuated in some places while they were thickened in others; and in both, at spots free from absolute ulceration, the mucous lining has been loose and lacerable, or abraded. Frequently there has been serous infiltration of the peritoneal covering, the mucous lining having a leaden hue, through which light-coloured spots were sometimes interspersed, giving it then the appearance of dark marble; occasionally, it has had a purple colour, with a rough granular surface, resembling the exterior of a mulberry; and it has not unfrequently happened that the whole tube has been so much softened, broken down, and disorganized, as to tear on the slightest touch, or fall to pieces on being lifted. With scarce an exception, the organic lesions have been limited by the ileo-cæcal valve, the small intestines and stomach presenting a perfectly healthy appearance, although venous congestion and small spots, denoting increased vascular action, have been found occasionally. When it is said that the small intestines and stomach presented a perfectly healthy appearance, it should be added that portions of the former, generally the distal extremity of the ilium, were often, in cases of long duration, much attenuated, and pale, and diaphanous, like a prepared colourless membrane.

In all the bodies examined, except two, the liver has been healthy, and was evidently capable of performing its functions well. It would seldom happen, indeed, in so many cases of post-mortem examination, instituted any where, without selection, that this organ will be found so thoroughly entire. The exceptions alluded to were, first, one in which there were tuberculous deposits, which however had no apparent connexion with the disease which caused death; and, second, the case of abscess noticed in a former paragraph. There was one case of abscess in the spleen also noticed in a preceding page, and another, in which there was a small encysted formation of pus, but the latter, at least, appeared to have had little if any connexion with the fatal issue; and in a vast majority of instances, indeed, all but universally, excepting the

immediate seat of the disease, the extent of the large intestines, all the organs and tissues of the body were in a remarkably sound condition.

That intestinal flux, whether dysenteric or diarrhoeal, has often no dependence on miasmatic poison, the following facts seem to show, at least they prove its independence of open marsh. It is much more frequent at the Isle of France than on the west coast of Africa; at the former place there is little marshy land, at the latter it abounds. In like manner, dysentery is much more prevalent at Bermuda than Belize, the former place being almost entirely free from marsh, while the latter has scarcely any other kind of soil. Here, however, its connexion with paludal poison seems to admit of no doubt. In truth, the flux ought to be considered a constituent part of the periodic fever, rather than an independent malady in most instances, but is often so prominent a part, and presses so closely on the attention both of patient and practitioner, as greatly to distract the observer, and disguise the original essential affection. The obscurity thus occasioned is apt to be increased by the conflict of indications in treating the two phases on the supposition that it is but one and the same in reality; for, as has been stated above, and is pretty clear from the nature of things, the means which are fitted to act remedially in the intermittent fever, often cannot be borne, or act injuriously in the intestinal flux.

And not only in intestinal flux, but in other forms of disease also, has the cause of periodic fever been influential in the late operations on these shores, and is therefore likely to excite kindred influence in the same places afterwards. This, after the intestinal has been particularly apparent in the ulcerative form; where, though there has not often been distinct paroxysms of intermittent fever concurrently, there has been, in many instances, preceeding, following, and alternating attacks, or intestinal flux permanent or periodic, more frequently the latter, rising and falling with improvement and deterioration of the ulcer; and with all the very striking, scarcely to be mistaken aspects of the ague subject.

After fever and flux, this, the ulcerative, has been the most important form of disease in hospital, and is the only one, calling for separate notice; at present, there are 38 cases under treatment. Generally they are proceeding favourably, in some instances rapidly towards cure; but there are other cases, where from the destruction of periosteum and exposure of bone, in conjunction with deep constitutional disease, the healing process must be slow, if it can ever be completely accomplished. These ulcers, as stated, have generally been of a very bad description, rapidly sloughing or more slowly phagedenic, of ten recurrent, sometimes involving tendons and ligaments as well as bones, and constantly associated with failure of vital energy, with emaciation, anasarca, deep derangement of the alimentary functions, pale lips, and clay-coloured complexion. In no case has the last measure, amputation, been resorted to as yet; but it is feared that it may be required in more than one, with the view of saving life, which, from the presence of constitutional disease, it may, however, fail to accomplish.

November 21st. During the week just ended, the weather has been literally beautiful. Twice, early in the morning, the thermometer has fallen to 54° , and has not risen above 65° , the barometer being steadily upwards of 30 inches. The sky has been cloudless and bright in an uncommon degree. In the day there have been brisk exhilarating breezes from the north, while the nights were calm and clear, the moon being nearly full and more than usually luminous; and the sensible impressions have been highly agreeable, tending at once to enliven, tranquillize, and elevate the mind. It is impossible to imagine weather more consonant with our notions of salubrity; it realizes the conception of atmospheric influence favourable to health in a very high degree. Yet there have been a few cases of pestilential cholera in the inner harbour, and close to the town, and the sick lists of the ships have not materially diminished. The cold does not appear sufficient as yet to arrest the morbid exhalations; but as it increases it may be expected to have that effect; and, where organs are not much

injured, to accelerate convalescence, which has hitherto been slow in most cases.

A feature in the night scenery here, as conspicuously seen from the anchorage, and peculiar to China, may be noticed in passing. All along the slopes of the hills to their summits, flames are seen at different points, shining brilliantly for a short period, suddenly disappearing, and then as suddenly re-appearing, at particular seasons especially, during the first hours of darkness. Amid the silence and repose of the dim landscape those meteor-like lights have a strange but pleasing effect; and the impression is deepened by knowing that they form part of the monumental rites, and that in this way, among many others, the people testify their love for lost friends and respect for their memory.

On the 24th, John Chiaren, of the Royal Artillery, from the Sophia transport, received into hospital on the 2nd current, died yesterday morning; and a sketch of the case is taken as an example of many which have been treated, and are now under treatment. He had been in the Yang-tse-Kiang, where he suffered from periodic fever and flux, but the former, though he had chills, heats and sweats irregularly, never recurred in distinct paroxysms after his admission to hospital. Neither emaciation nor debility was so extreme as in many other cases, but the face had a clay-coloured, yellowish hue, the lips were blanched, and the pulse was feeble; there was abdominal dropsy, not to any distressing extent however, anasarca of the lower limbs, and partial œdema about the eyelids and cheeks. The urgent symptoms were intestinal, but pain made no part of them. Purging was at first incessant, but was moderated on the second day. It soon, however, became more frequent again, again was reduced, and again aggravated; and, though the patient often said he was much better, and wanted only strength to be well, it was evident that the disease was all the while making progress, sometimes rapid. For the last five days the sphincter ani lost all power, and the discharges became involuntary, though not unconscious. On the morning of the 22nd after a comparatively tranquil night, having been less frequently

purged, he talked cheerfully, said he was much better, and should be quite well shortly; the pulse was then feeble, but not excessively or alarmingly so, and there was considerable reduction of the dropsical effusion. There was no notable change in the evening; at 6 A. M., the following day, he was found dead, men close to him thinking he was asleep. On examining the body six hours afterwards, the following were the appearances noticed:

Thoracic organs sound, excepting old pleural adhesions. Liver normal. Spleen, if not absolutely, very nearly in normal state, there being no perceptible change of structure; mucous lining of stomach and small intestines rather more vascular than in health. Kidneys uninjured. The colon, at the sigmoid flexure, was so far disorganized that it tore on being lifted from its natural position; its mucous surface throughout was livid, thickened in parts, and in other parts abraded; and there were, particularly in the descending portion, numerous small, deep ulcers. The rectum was in a state closely approaching gangrene, the inner surface being black and the whole diameter yielding to the slightest touch. There are some circumstances in this case worthy of notice, not only on its own account, but as the type of many others. It is one of a number in which, though the disease evidently possessed fatal force, death was not looked for at the time it happened. It wanted many of the features which generally mark the last stage of chronic disease, such as visible sinking from day to day, hippocratic shrinking of the countenance and partial obscuration of the intellect. A short time before he expired, when last visited, nothing appeared to forewarn the observer that death was at hand; but vital power had been more exhausted than physical decay, as measured by signs, indicated, and was early and quickly exhausted by some unobserved accident. Such have been the terminations of many like cases here, one of which happened a few nights ago. The subject was a private of the 98th Regt., labouring under intermittent fever, complicated with flux and dropsy in a slight degree. In him debility was less marked even than in the other; he walked without difficulty to the close-stool, a dis-

tance of sixty feet, as was his practice, but became faint on his return to bed, and died in half an hour. The post-mortem appearances were similar to those in the artillerist, though the organic destruction was not so great.

Another point remarkable in both, but especially in the gunner's case, and in this, too, it is a type of many others, is the amount of intestinal disorganization borne without destroying life. The state of semi-putridity in which the rectum was found, as well as the condition of the colon, was clearly incompatible with existence; nor does it appear that any thing nearly approaching it is consistent with constitutional vitality; yet considering the whole case, with its progress, the conviction arises that the process by which it was accomplished was protracted and gradual, and that by tardy steps, the point recorded above was reached.

Again, it is worthy of remark, and, indeed, presses strongly on the attention, in these cases, representing so many others, that the parts in question—the colon and rectum—alone showed signs of structural disease; for the pleural adhesions were old and unimportant. Both were the consequence of disease, excited by miasmatal poison, the proper effects of that poison being clearly manifested by the general tenour and specific marks of the morbid actions; yet the spleen, liver, mesentery, and kidneys, were healthy. Why is it that the virulence of the poison, in its ultimate effects as observed after death, in so many cases, should, on these shores, fall so exclusively on the large intestines?

November 26th.—The following case is noticed with the same general object as the two last. The subject, James Johnson, a private of the 98th regiment, was admitted into hospital on the 22d of October, and died early this morning. No statement of his previous condition was received; but, from his own account, he had laboured under ague and flux, for some weeks, in the Yang-tse-Kiang. The aspect of the patient would have confirmed, if necessary, the assertion as to the first form of disease, and he laboured under the second on his reception, at which period there was

copious salivation, with much emaciation and debility, and the common clay-coloured complexion. On the 24th, the bowels were tolerably tranquil, and there was slight general improvement, though the complexion did not change, and there was still considerable debility. On the 31st, he was allowed the half diet of the hospital, having desire for food, and he appeared to convalesce, though slowly, till the 8th of November, when there was return of flux, which, however, was checked on the 11th. It returned again on the 14th, was again checked on the 17th, and was never afterwards urgent. Salivation continued all the time, the teeth became loose, the gums ulcerated, especially on the left side, and there was œdema of the face, on the 22nd, apparently arising from the state of the gums and alveolar process, the swelling being greatest on the side chiefly affected. The œdema was local, and there was neither headache, vertigo, nor somnolence. On the morning of the 25th, the bowels were tranquil, the state of the mouth was improved, and the facial œdema nearly gone. The pulse, as in the gunner's case, though weak, was not so to an excessive or alarming degree. The respiration was free, the aspect, on the whole, amended, and he expressed himself as feeling better than he had done for many weeks before. At the evening visit, nothing denoting increased danger was observed. Early in the morning, without having appeared worse, or complained, after having sat up and used a gargle, five minutes before, he gently, and without exciting observation, expired.

In this case, also, on post-mortem examination, no lesion of the slightest importance, except in the large intestines, was discovered, and in these the disorganization was not so great as in many others. The colon and rectum were much thickened throughout, the mucous covering being in parts abraded, in others dotted with small ulcerated points. The whole surface was of a mulberry colour, with granular transverse ridges, and presented an appearance altogether as unlike that of the inner membrane in its healthy condition, as can be easily imagined. Here, too, death was not expected when it took place. Life, without any

rapid, or apparently dangerous reduction of force, was protracted to a period which became surprising, when autopsy showed what had been going on, and had taken place; and here the virulence of the poison, as displayed by disorganization, fell almost exclusively on the large intestines.

November 28th.—Since the 21st, a great change has taken place in the weather. Till the 26th, it continued to be beautifully fine, the sky being cloudless, the breezes light in the day, dying away at night, and the thermometer ranging from 56° to 65° , the last and highest point being reached on the 25th. Rain began to fall lightly on the 26th, with strong breezes and thick clouds from the north-east. The 27th was marked by high winds and dense passing clouds from north-west, the barometer rising and the thermometer falling rapidly at the same time. The former instrument stood at $30\cdot40$, the latter at 45° in the open air, this morning, at eight o'clock. It is now bright, but blowing strongly from the same quarter, the barometer keeping high, and the thermometer showing little tendency to rise. Here, as in the gulph of Mexico, and other like geographical positions, the barometer rises with northerly winds, and continues rising as the former increases.

Although there have been some accessions of bronchitis, and diarrhoeal affections, the sick lists of the ships in harbour have generally declined during the week. As might have been expected, from the sudden reduction of temperature, there have been a few instances of recurrent ague; but when the cold weather is established, as it will probably be from this time for the season, with returning organic power, relapses will become less frequent, till, where structure is not permanently injured, they cease altogether. At any rate, the source of miasmatic disease will be cut off, and, with it, the great fountain of diseased action here. That being the case, and physical force, where it is yet rather feeble and fluctuating, being restored by salubrious reduction of temperature, with easy duties and excellent rations, it may be fairly concluded that the squadron will soon become highly healthy, and

continue so, at least, till the heat of next summer generate the cause of periodic fever, and of allied maladies.

The following case is sketched chiefly for the purpose of showing with how little specific change of structure, the miasmatic poison may cause death; and, at the same time, to notice a feature which appeared in it, which has occurred in some other cases, and which has almost universally been a harbinger of death. Here also, as in some of the foregoing cases, excepting the symptom in question, there was little reason to apprehend death at the time it happened. The subject (James Taylor, a private of the 98th regiment,) was received on the 22nd of October, and died yesterday morning. No account of his previous disease was received; but he stated that he had suffered many weeks from intermittent fever, which, for the time, had left him, and that he had no complaint except weakness. He was, in fact, feeble and emaciated, with clay-coloured countenance, and blanched lips, but no morbid action was detected; said his appetite was good, and was allowed the half diet of the hospital. On the 25th, there was slight diarrhoea, which was restrained till the 30th, when it returned moderately; after which, it recurred occasionally, but never with violence; and on the 5th of November, there being something like convalescence, though slow and undecided, he had the hospital dress, that he might be up, and take exercise. On the 9th and 22nd, there were ill-defined attacks of intermittent fever, which did not last long, and left him without a febrile symptom in a short time. Although he did not advance in a satisfactory manner, nothing appeared to excite alarm till the 23rd, when he complained of his mouth being very sore, not the effect of mercury, which constitutes the fatal feature alluded to above, and which appears to be closely allied to the idiopathic salivation, often occurring here, and noticed in the case of James Johnson. The left cheek was found to be slightly swelled and inflamed, and there was superficial ulceration of the mucous lining, close to the commissure of the lips, which extended till the 27th, but never became deep, or important in itself; the teeth, at the same time,

had a dark brown colour. On the morning of the 28th, the tumefaction of the cheek had subsided; the ulcers looked cleaner; he said his mouth felt better, and that, though he had been frequently purged in the night, he was more comfortable than he had been for many days. The pulse was of good volume, and moderate power, though slightly accelerated; there was evidently increase of debility; the countenance was dark, sallow, and the entire aspect unpromising, but not indicative of pressing danger. At half-past one P.M., he suddenly became comatose, and died two hours afterwards.

The state of the mouth just noticed in this case, as well as the salivation in the last, had been observed in many others; but as both occurred mostly in patients who were received in an advanced state of disease, with the affection fully developed, and suffering generally from flux, they were attributed, at first, to the influence of mercury, and the more readily, from knowing that calomel had been liberally administered in a great majority of instances. As these affections were traced, however, the reality of mercury acting as the cause, at least the sole cause, began to be doubted; and this case, with others, renders it more than doubtful, for the patient, during the five weeks he was in hospital, took no more than four grains of calomel. It appears to be, in fact, one of the morbid manifestations of the miasmatic poison—a solution of parts resulting from destructive debility. Why it should frequently affect this particular portion of the alimentary mucous tissue, is a question, but one neither more strange, nor more difficult of solution, than why it should fall, as it much more frequently does, on the large intestines.

The body was examined four hours after death. In the colon and rectum, there was considerable thickening of the tubular structure, but neither ulceration nor abrasion of its mucous lining. The peritoneal covering of the intestines, especially of the large, was infiltrated with serum, as were all the reflections of that membrane; and there was about a quart of serum within it. In the pericardium, and under the arachnoid membrane, there was

rather more than the ordinary quantity of fluid, but very little more, and not enough to account for death. The dropsical diathesis was everywhere evident, but its results were trifling. All the other organs and structures were normal. The miasmatic virus did not, in this instance, as it most frequently does here, destroy directly through inroads committed on the large intestines; though there was more palpable change of structure in them than in any other tissue. Independent of what took place latterly in the mucous surface of the mouth, that change was not the immediate cause of death. The poison pervaded, and seems to have contaminated the whole system almost equally, in every part; and the powers of life were exhausted, rather than destroyed. If metaphorical language were permitted on such a subject, it would be a correct figure to represent the living edifice, in this case, as becoming prostrate and perishing through the invisible agency of sap and mine, not as being demolished by the palpable instruments of open storm.

December 3rd.—The two following cases are noted, chiefly to exhibit the uncertainty of the signs characterizing aneurism of the aorta, or, at least, the difficulty occasionally encountered in interpreting them properly.

J. Pean, æt. 21, private marine, was received from the Endymion, on the 25th of October, labouring under chronic flux, complicated with tertian intermittent. He was feeble, emaciated, and clay-coloured; and his aspect was altogether most unpromising from general, without particular reference to local, disease, which, beyond resulting disease in the large intestines, was not, at the time, suspected, though it was afterwards thought that he had aneurism of the abdominal aorta. The action of the vessel was forcible, especially in the umbilical region, the impulse there being very strong, visible through the parietes, and apparently limited and well defined. These impressions were strengthened by stethoscopic exploration; and to give greater assurance to the diagnosis, the patient represented the tumour to have been noticed by him some weeks previously, and soon after strong muscular

exertion. The miasmal disease held its onward course, little influenced by the medical means employed. Intermittent fever did not often occur in distinct paroxysms, after his admission; but the intestinal affection, though often restrained for short periods, continued progressive till the 24th of November, when, being reduced to a state of extreme emaciation and debility, he sunk.

On removing the abdominal contents, and looking for the assumed aneurism, no such lesion could be found. There was slight active hypertrophy of the heart, with adhesion of the pericardium, which probably communicated a morbid impulse to the abdominal aorta, as well as the rest of the arterial system; but why should that condition give such a preponderating share to the part in question, and so perplex diagnosis? There was neither fluid, nor indurated structure, interposed between the aorta and surface, to disguise the real action, and deaden the sense of hearing and of touch. As in most other cases of post-mortem examination in this place, the large intestines were much diseased, the colon and rectum being softened and ulcerated; the small intestines were unusually vascular.

John Hampton, private 98th regiment, admitted on the 23rd of October, for the treatment of intermittent fever, and resulting debility, complained, in the first instance, of pain in right side of thorax, and cough. On the 25th, he said the thoracic pain was gone; and he did not refer to it again, or admit that it existed, when questioned on the subject. He never had a distinct paroxysm of fever after he came into hospital, but his appearance was that of a person suffering from miasmal poison, deeply planted in the system. He was pale, with a little yellow intermixture, emaciated, feeble, anasarcaous in the lower extremities, and occasionally œdematous in the face. When the œdema disappeared, the countenance was singularly shrunk and withered. There was little intestinal irritation; and he had a tolerable appetite, which was indulged as far as was thought beneficial; but he continued losing ground rapidly, the dropsical effusion varying a good deal, and affecting the abdomen, but never becoming oppressive. There

was short dry cough throughout, and latterly it became little doubtful that effusion was going on in the thorax, though there never was anything approaching orthopnœa, nor was there much distress while awake, but there were disturbed dreams, and sudden startings from sleep in the recumbent posture. On the 30th of November, in the morning, he died, without being observed, but without exciting surprise, as he had evidently been sinking for some preceding days. This is the note of what appeared on examining the body nine hours after death.

Thorax. The cavities of both pleuræ contained two quarts of serous fluid, that on the left being deeply coloured with blood, and a large coagulum was found in the posterior part of the chest on that side, which, on further examination, proved to be the result of an aneurism of the thoracic aorta, about three inches below its curvature, which had burst into the left pleural cavity. The lung on that side was hepatised, and much diminished in volume, its pleural investment being thickened, and easily torn. The heart was healthy in structure, but there was some serous infiltration at its base; and there was little fluid in the pericardium.

Abdomen. The cavity of the peritoneum contained about three quarts of serum. All the organs were sound, except the colon, which, as seen in situ, appeared in parts dilated, in others contracted; on being laid open, its mucous membrane, as well as that of the rectum, was found to be much hypertrophied, but irregularly in different portions, all of it being livid and corrugated.

In this case, disease of the aorta, though it was not suspected, proved the cause of death. Whether, if its subject had escaped the influence of miasmatal virus, and other causes of fatal disease, anything might have arisen to call attention to the aneurism, is doubtful. It is probable that, as in many other instances, the first notice of its existence would have been the sudden cessation of life. As it was, nothing appeared to cause inquiry respecting it, the mind of the patient, as well as of the practitioner, being occupied by the dropsical swelling, and progressive debility, while the latter saw sufficient in them, and the marsh poison, of which

they were the effects, to account for all the danger. But, though the rupture of the aneurism caused death, it is not believed that life, independent of that occurrence, could have been protracted many days, or even hours; and this is a curious instance of concurrent causes of death, or, at least, of co-existent fatal forces, one of which must speedily have effect, their precedence apparently being determined by accident. Was the cause of death the local affection, precipitated by the constitutional malady? The cause, and a powerful one, of rupture, was evidently in little force, that, namely, of energetic vascular action; but, on the other hand, and more than counterpoising this safeguard, it is probable that the poison which pervaded the system, and was rapidly subverting its organic integrity, at once hastened the attenuation of the sack, and interfered with the protective deposition of fibrin, and then left the rupturing power—the vis a tergo—little to accomplish.

December 5th.—There has been considerable variety in the weather of the week just ended. The three last days of November were fine, though cold, the sky being bright, and the breezes moderate. On the 1st instant, it was calm and clear, becoming warm towards noon. In the afternoon, the thermometer rose to 64°, and the barometer fell below 30 inches. On the 2nd, the sky was overcast, with drizzling rain, which became heavy at night. The 3rd and 4th were marked by very strong breezes from the north west, with dense passing clouds. Yesterday morning, the thermometer fell to 40°, at eight A.M., in the open air, the barometer having risen to 30.50. As noticed before, proportionately with increasing strength of the breeze, from north, the latter instrument rose steadily.

The ships' companies in harbour continue to improve in health and strength. Many of them still suffer in some degree from the effects of the miasmal poison formerly imbibed; but its effects are lessening in most of those who have not suffered serious organic injury; and it has not now the power to affect others.

The following case is briefly cited to show one of the modifications of miasmal disease in this region, and because it is a fair

example of many others in which ulcerative action has been manifested. The subject, Thomas Hayes, private of the 98th regiment, was admitted on the 22nd of October, and died on the 2nd of December. No written statement of what he had previously suffered, or why he was sent to hospital, accompanied the patient; but a bad ulcer on the left leg was a palpable and sufficient reason for his reception. It was extensive, and excessively irritable at the edges, a portion of the tibia being exposed; but he said he was, at the time, well in other respects, and had a good appetite. On questioning him, it appeared that the ulcer was of some weeks' standing, and that he had suffered, as the whole regiment had, from periodic fever in the Yang-tse-Kiang. His aspect was that of one labouring under the effects of paludal poison—wan, emaciated and feeble, with anæmial lips. Besides the requisite local treatment, the appropriate remedies for periodic fever were administered steadily; and he continued free from any marked disease, except the ulcer, till the 27th, when watery purging set in, and continued, with varying degrees of force and intermissions, till he died. The ulcer, in a few days, assumed a tolerable appearance, soon began to granulate, and cicatrised over the greater part of the surface; but the intestinal disease could not be permanently arrested. It was never violent, nor much dwelt on by the patient, but it gradually exhausted, producing an extreme degree of emaciation, and ultimately destroyed him.

On post-mortem examination, no disease appeared in the thorax, except hepatization of a small portion of the left lung. He had one paroxysm of asthma in hospital, and said he was subject to the disease. The stomach was small; the liver, spleen, and pancreas, were healthy, as were the other abdominal structures, except the colon and rectum; they were generally much thickened, especially the mucous tissue, which, while it was hypertrophied in parts, was atrophied in others, of a leaden colour, and easily torn. In this case, though there was no distinct attack of intermittent fever, after admission to hospital, no doubt is entertained that the cause of it was deeply in the system, and that,

through the channel noticed above, as a tertiary affection, it proved fatal. In other instances of ulcer, though not notified, or observed, at admission, flux has been developed soon after, frequently when the disease for which the patient was sent, was nearly cured, or where granulation and cicatrization were proceeding favourably. In other instances, again, of ulcer, ague and flux have alternated, but seldom set in, whichever appeared first, till the ulcerative affection was well advanced in cure. In short, these affections—intermittent fever, intestinal flux, and ulcer—have, in many cases, proved vicarious one of the other.

The following case is sketched for the same purpose as the last, and also as a striking example of constitutional, gangrenous ulcer. The subject, T. Sullivan, æt. 17, from the Belleisle, was admitted on the 3rd of October, and died on the 7th of December. Ulcer of bad character had been rather prevalent in the ship for some months, having made its appearance on her passage from England, and he had suffered from it before entering the Yang-tse-Kiang. It appears, from the surgeon's statement accompanying him, that his ulcers had been cured and re-cured more than once, but that they were open when he was attacked by fever, on the 17th of August, before Nanking. When received into hospital, there were extensive sloughing ulcers on the dorsum of both feet, and over the lower third of the tibia and fibula of the left leg. He was pale, emaciated, and feeble, but said his appetite was good, and that, excepting the pain of the ulcers, he felt well. In the course of five days, the appearance of the ulcers had improved considerably, the destructive process being arrested, and restorative action fairly instituted. On the 14th, intestinal irritation and flux set in; on the 16th, the ulcer on the left foot was completely cicatrised, and did not recur. But the general aspect did not materially improve; and from this date, the flux hung about him; it was often arrested for a short time, but always returned. The ulcers on the right foot and left leg likewise varied considerably from time to time, but, after the 18th of October, never presented a satisfactory appearance. The sloughing process was more than

once arrested, but nothing in the shape of granulation or healthy action followed. There were occasional periods of inaction—a kind of intermittent repose for a short time—succeeded by other inroads of gangrenous inflammation, leading to additional loss of substance, and destroying, by repeated attacks, muscle, ligament, tendon, and periosteum, to a great extent. Concurrently, or alternately, the intestinal affection held its way, the dejections being generally watery, but sometimes mucous, and muco-sanguineous; and the emaciation and prostration became so excessive some time before death, as to render the protraction of life surprising.

When death took place, the right foot was in a state closely approaching that of a perfect skeleton, the metatarsal, and great part of the tarsal bones, being not only exposed, but as completely denuded, and cleared of every incumbent tissue, as if they had been carefully dissected. The articulating structures between the metatarsal and phalangeal and tarsal bones respectively, were also completely destroyed; so that it was necessary, some time before death, when dressing the foot, to support it with care at the extremities, to prevent the metatarsal dropping from its tarsal portion. The ulcer on the left leg, at death, embraced three-fourths of its circumference at its lower third, and extended upwards three inches, leaving the tibia and fibula bare for two inches.

Passing from the external to the internal ravages of the disease, the following were the appearances presented in the thorax and abdomen, on inspection eight hours after death. The lungs, heart, and membranes, were healthy; but there was serous effusion into the left pleura and pericardium. The stomach was healthy, as were the upper two-thirds of the small intestines; their lower third was more vascular than in the normal condition. The colon was highly vascular, thickened, and ulcerated, at many points, some of the ulcers having penetrated the muscular as well as the mucous tissue, perforation being prevented by the atrophied peritoneal covering. The liver was healthy, with the exception of a small tuberculous deposit in its upper surface. The spleen was

studded superficially with small tubercles, and contained some in a softened state, but was normal in size. There was no right kidney; the left was considerably larger than usual, healthy in structure, and appeared to have performed sufficiently the function of separating the urinary fluid from the living stream. In this case, as in the last, though there was no definite attack of periodic fever in hospital, no doubt is entertained that miasmatic poison produced the complicated malady which caused death.

December 12th.—On the 6th there was rain, with sleet, and a few flakes of snow fell in the harbour, though the thermometer did not fall below 43° , being two degrees higher than it had been the day before. Snow lay all day on the heights of the contiguous continent, and, during the greater part of it, on an eminence of Chusan, with an elevation computed at 2,000 feet. The 7th and 8th were cold and clear, with strong breezes from north-west, the barometer being 30.40, and the thermometer from 45° to 60° . The three following days were calm and bright, the thermometer falling below 50° at night, rising to 64° at noon; and now, mid-day, the thermometer is 63° ; the barometer is 30.10. There is not a speck in the sky, nor a ripple on the water. The weather is as fine as can be imagined, and by the senses, as well as by instruments, seems highly favourable to health: yet, in most of the ships anchored here there is increase of sickness. It is not much, nor does it include important affections; still it has happened instead of diminution, which might have been expected. The ulcers which had been going on favourably, in many cases rapidly to cure, under hospital treatment, have suddenly assumed a less promising appearance; in some there has been arrestation of the healing process, in others retrogression. The change is not only unfortunate, but at present inexplicable; for with great diminution of the number in hospital, and salubrious reduction of atmospheric heat, it might have been reasonably concluded that healthy action would not only have continued, but become more vigorous.

The infrequency and slightness of organic change in the liver

and spleen, as observed in post-mortem examination, when death is occasioned by miasmatal poisoning in this place, are remarkable in themselves, and especially so when compared with the structural lesions excited by disease of similar form and origin in other parts of the world. This comparative immunity has already been referred to, and preceding autopsical sketches are in proof of its reality. It may, perhaps, be noticed more circumstantially in the sequel: in the meantime, the following case is quoted in further evidence of the fact.

Wm. Hammond, private, 98th Regiment, was received into hospital on the 22nd of October, and died on the 5th of December. When admitted there was profuse ptyalism—mercurial it is believed—great emaciation and debility; the complexion was pale, sallow, and the lips were bloodless; the entire appearance being that of one deeply imbued with paludal poison. No statement accompanied him; but from his own account, which his aspect fully certified, he had been affected by both intermittent fever and flux, in the Yang-tse-Kiang; and from the latter he suffered severely on his reception. It further appeared that he had been the subject of ague, when quartered near Portsmouth, two years before; that the disease had continued to recur for four or five months; and that he had never been strong or right well since. After his admission into hospital there was no well-marked paroxysm of periodic fever, no invasion in which the three constituent parts and consecutive stages of the disease—rigor, heat, and sweating—could be clearly traced. But every forenoon there were chilly sensations, with copious concurrent perspiration. The intestinal affection pursued its fatal course, little influenced by treatment, as had happened in so many similar cases, following, or alternating with, and constituting an important part, as well as peculiarly destructive modification of, the intermittent fever. In this case, on the 21st of November, as also happened in many others, there was abatement of flux, slight general improvement, and promise, to the inexperienced eye, of progressive amendment, proving, however, here, as such promise has so constantly done,

fallacious. Some days before death, emaciation and debility had reached an extremity very seldom witnessed; and as has often occurred here, there was wonder that life could continue.

Considering what was observed in hospital in connection with the history of this case, organic injury of some kind in the spleen or liver, or both, might have been anticipated, without reference to anything that could be learned by exploration, and the interpretation of physical signs exhibited during life; yet when the body was examined four hours after death, no such injury was found, the liver and spleen, as well as the pancreas and kidneys, being in a perfectly normal condition. But "the colon was much thickened and studded with small deep ulcers, increasing in number and size towards the rectum, which was much and deeply ulcerated, giving to the lining surface a dark marbled appearance."

December 19th. During last week, the weather was uniformly fine, much resembling the close of the preceding. The thermometer did not fall below 52° , the first six days, nor did it rise above 67° ; the sky being clear, generally cloudless. Calms were frequent, and the north wind was light. On the 17th, there was a fresh southerly breeze, which, notwithstanding its strength, was probably of very limited extent. Yesterday, the true wind of the season, the northerly monsoon, blew strongly, bringing dense masses of black clouds, and threatening rain, which however did not fall. Before the increase in the force of the north wind, the barometer began to rise, and rose steadily as the breeze strengthened, till it reached 30.35 inches. During the calm bright days, it fell to 29.96; the weather being again clear and nearly calm, the column shews a tendency to fall.

Although the difference is not great, the sick lists of the ships in harbour are less numerous than during the preceding week; and the proportion of convalescent cases is higher. The unfavourable appearance of the ulcers in hospital, which, as observed last week, had come so suddenly, and without apparent cause, has ceased, and they are generally again proceeding in a satisfactory

manner. It can scarcely be doubted that both conditions—suspension and renovation of restorative action, depended on atmospheric agency, though its nature cannot be ascertained.

Considering the change of weather, with reduction of atmospheric heat experienced within the last six weeks, there has been less rheumatism than might have been expected, less indeed than generally occurs among equal numbers of men in naval service. From the returns of thirteen ships which have been received, there are no more than four cases under the head of rheumatism, which often embraces more than it properly should; and no case has been sent to hospital. Catarrhal affections are also comparatively rare. Periodic fevers, fluxes, and constitutional ulcers, having, it is believed, a common source, continue to be the prevalent forms of diseased action; in no other is there either extension or much power, or consequently particular interest. They are neither frequent nor formidable at present, but they are the radical and representative maladies, so to speak, of the locality. Their cause, though not absolutely arrested, is checked and enfeebled in action; but it is neither destroyed nor divested of its original qualities. With return of the season of high solar heat, and modified degrees of moisture, influenced by other agencies of which we are ignorant, the partially pent up poison will be again fully unchained and disseminated, producing effects similar to those so abundantly witnessed of late, but acted on, and rendered more or less powerful, as all poisons are, by the condition, inherent or acquired, of the persons to whom it is applied. From the mysterious agencies just alluded to, as influencing or co-operating with the more palpable causes of endemic diseases, arises the difference in their prevalence and force during different seasons; and hence it is, hence it must be, that they produce destructive epidemics one year, and scarcely operate other years.

December 26th. Within the last seven days the weather, though varying considerably, has altogether been moderate, and generally warmer than for some preceding weeks. On the 21st, 22nd, and 23rd, the sky was clear, with light southerly winds, the thermo-

meter rising to 71° at noon, and the barometer falling to $29\cdot88$. On the 24th, the thermometer fell five degrees, and the barometer rose one-tenth of an inch. The 25th, was ushered in by rain, the wind having shifted to north, blowing moderately, and bringing dense masses of black elouds. The thermometer fell to 51° , being a reduction of twenty degrees in two days, and the barometer rose till it reached $30\cdot40$. To-day, the breeze is light tending to the south. The sky being eloudy, the thermometer, 60° , and the barometer, $30\cdot18$.

There has been, in most eases, reduction in the siek lists of ships' eompanies, in many of them considerable; rheumatic and eatarrhal eases still eontribute little to their number. As frequently happens, and often to a much greater extent than here at present, there is remarkable difference in the proportion of siek in the different ships in harbour, without apparent eause; in none, however, is it high, and taking them together, it is very moderate. The ten ships and vessels in the anchorage do not give more than five per cent. siek and injured of the employed; and the eases generally are slight and transient. Less than three months ago, the proportion siek of the employed was more than twenty-five per cent.; the echange, though great and gratifying, is not wonderful. The force has passed from a position where the eauses of disease were widely disseminated and deeply eoneentrated, in the season of their most powerful aetion, to one in which they are eomparatively little diffused or powerful, being at the same time much repressed if not absolutely suspended, by reduction of atmospherie heat.

This is in aeoordanee with what is known, and apparently pretty well understood; and the result has therefore intelligibly followed expectation. But it does not touch the question of difference, often great, in the siekness of different ships employed together, and apparently exposed to exactly the same kind and amount of agency injurious to health; why, for example, in the late operations, the Driver steam-vessel suffered much more than the Vixen, a vessel of the same elass, eommissioned at the same time, arriving from England nearly at the same time, but sooner,

and serving in a similar way but longer, in the Yang-tse-Kiang ; or why the Apollo proved more healthy than the Belleisle ; why the former escaped sloughing ulcers which affected the latter. The two last ships proceeded from England for China in company, and were employed there in the same manner, both being used as troop-ships. The question refers to the health of the crews of the respective ships, not of the soldiers embarked in them, which, and some of the circumstances affecting it, have already been noticed. The ships named above are noted as examples of the difference in question, not because they are so striking as many others, but because they were employed in this service, and are therefore recent instances. The question, as a general one, is of the highest importance, and should be constantly asked and agitated, in the hope of its being satisfactorily answered sooner or later.

The following case is noted as an example of universal, and nearly equal poisoning of the whole system by the miasmata of the Yang-tse-Kiang. The subject, Lieut. Robert Ancill, agent of transports, was received into the hospital on the 12th, and died on the 24th of this month. There was no medical officer in the ship in which he was embarked, and consequently, till his admission into the Minden, he had not the advantage of regular medical attendance ; but he was visited and prescribed for as frequently as possible, especially by the surgeon of the Harlequin, who besides furnished a written statement, after the patient came into hospital, of as many particulars of the previous condition as had come to his knowledge. This is the first entry in his prescription ticket, previous to the receipt of the surgeon of the Harlequin's account.

"December 12th, 4 P.M. No ease accompanies the patient, and he gives a very indistinct account of himself. It appears that he has suffered from intermittent fever, probably also from flux ; is now very feeble, and he says, faints when in the erect posture ; skin sallow, breath foetid, probably from mercury, gums flabby and pale, teeth dark-coloured, tongue white, pulse 104, feeble, slight dropsical effusion with the dropsical diathesis complete." It was

afterwards ascertained, from the statement alluded to above, that he had suffered from some form of periodic fever during many weeks, in the river operations, which however had not recurred distinctly for more than a month, and that he had subsequently been affected by flux, fainting fits on getting up, and latterly by rapidly increasing debility. Although there was a slight show of rallying for a few days after his admission here, it was very uncertain and ill-defined; and the wasting malady proceeded in its fatal course without being checked, or materially influenced by the medical measures adopted. The patient continued prostrate, with pervading torpor, and tendency to somnolence. When roused, he replied briefly, and generally in much the same terms, to the effect that he was better, in fact well, but not strong. His mind was disturbed or rather debilitated, its faculties being so much reduced as to render his answers any thing but a faithful representation of his real condition. That condition, as noticed at first, in the preceding quotation from the prescription-book, underwent little cognisable alteration during the eleven following days of life. There was no pain, no apparent feelings of distress, no very tangible tumefaction anywhere; nor could it be determined, though it was supposed that life would be extinguished by cerebral effusion, which organ or system of organs was most affected. The bowels are generally torpid, but on two occasions, there were two or three fluid dejections tinged with blood; the intestinal affection however was neither prominent nor important. The power of receiving food was nearly, that of assimilation perhaps entirely, abolished, the organization required for the process, being fatally injured in the general wreck of the constitutional machinery, and death was the effect of complete exhaustion of the animal forces, vital and organic.

On examining the body thirty hours after death, scarcely any thing in the shape of structural change could be detected, and what presented itself, was evidently the effect of the general disease that destroyed life, being developed shortly before its termination. There was effusion of serous fluid to small extent, into

the cavities of the pleural and arachnoid membranes; there were dark-coloured patches on the mucous covering of the intestines; and the spleen was perhaps more soft and lacerable than usual, the preeursors, not the cause, nor contributing materially, and only as a part of the general sinking, to the fatal issue. The brain, heart, lungs, stomach, liver, pancreas, kidneys, were all healthy, all on rather a large scale, being constituent parts of a large frame, but exsanguined, and incapable of performing their functions. What was the cause of incapacity? As stated at the beginning of the note, the paludal poison appears to have entered deeply into the system, preying fatally, and almost equally on every organ and tissue, without especially affecting one part, and, through its abolition, destroying life. The subject was upwards of fifty years of age, had served long in various parts of the world, had suffered severely from intermittent fever and died from its cause; yet the liver was found organically uninjured, as was the spleen, though perhaps, for this is doubtful, very slightly hypertrophied. This is noticed, not because it is a rare exception, but, as observed above, because it is nearly of universal occurrence, especially in respect of the liver, in the numerous autopsies which have taken place here. Either there must be some especial immunity in favour of this organ in this place, or it must have been much misunderstood and misrepresented in many others.

In the following case, there were some very extraordinary circumstances; and it is briefly sketched an account of its rarity, as well as because it is believed to have been the result, certainly a very uncommon, and if not an unprecedented, at least an unrecorded one, of miasmal poisoning. On the 18th of November, T. Stokes, æt 20, a seaman, belonging to the transport Boretto Junior, was received into hospital, by order of the commander-in-chief, for treatment of gangrene, affecting the fingers and thumbs of both hands. At his reception, the disease had reached the distal joints of the thumbs and all the fingers, but had extended to the second joint of the index fingers, to that extent the circulation had entirely ceased, the parts being dead and black.

Complains of acute pain in the hands, shooting up the arms in the line of the ulnar nerves, and becoming much more severe at night;—pulse 108, sharp and irritative, skin dry, tongue healthy, bowels at present act pretty regularly, little appetite, no line of separation between the dead and living parts. The gangrene did not advance after he was received into hospital; the line of arrestation became evident a few days subsequently; separation of the sphacelated extremities, principally natural, but partly artificial, including the removal of projecting portions of bone, proceeded favourably; granulation and cicatrization followed; and, on the 26th, the cure of the stumps being nearly complete, and the general health restored, as his ship was on the point of sailing, he was discharged.

From his own account, the only one received, of his preceding condition, it appears that, up to about three months previous to his reception in hospital, he had enjoyed excellent health, and his form and general aspect confirmed the statement, but that then, while in the Yang-tse-Kiang, he suffered from ague and flux. Soon after his ship's arrival at Chusan, about the 20th of October, the date not being very certain, the affection of the fingers began, and continued extending, though slowly, till the day he came here, which was nearly a month after. The parts had not been injured in any way, and he did not know why they began to ache, especially at night, often preventing sleep, and gradually with increasing pain, became first dark coloured, and then black and lifeless. No disposition to gangrene appeared in any other part of the body. The disease and the diseased diathesis ceased under full doses of disulphate of quinine, anodynes, occasional remedies for intestinal disorder, which recurred more than once, and necessary local applications.

When first seen in hospital, the disease had the aspect of gangrena senilis, or of complete mortification resulting from the sudden application of destructive cold—frost-bite, being what has been called dry gangrene. But none of the agents producing such forms of mortification had acted on the patient. He was young, and a short time before, healthy and strong; the affection was con-

fined to the fingers, scarcely extended beyond their extremities, and was completely arrested. The air was temperate, and when the disease began, had been warm. In these circumstances, the affection is ascribed to the malaria of the Yang-tse-Kiang, being considered, though an anomalous one, a product of its poisonous influence. If it be objected that the conclusion, notwithstanding the difficulty of otherwise accounting for the disease, appears to be hasty, and may probably be erroneous, inasmuch as a cause may be efficient which is not apparent, and that in this instance deeper searching might have discovered it, the force of the objection is readily admitted, but when the history of the case, and previous condition of the patient, are considered, considering also the often strange, perhaps as yet unexplored methods in which, and by which miasmatic virus acts in subverting health, and knowing that its debilitating agency is occasionally most powerful, the belief that gangrene was here produced by it, appears to rest on a reasonable foundation.

SECTION IV.

Weather—Survey on invalids—Subject of invaliding seamen and marines generally—Troop ship Apollo—Her sanatory state, considered in connexion with the practice of admitting and pumping out water frequently—Question as to the general adoption of that practice—Its bearing on disease originating in ships—especially in fever, more especially West Indian fever—Meteorological notices—Sketches of cases, with remarks.

1843. January 2nd.—The week just ended has not had the brightness and beauty heretofore so common in the weather of Chusan. Rain fell copiously on the 26th and 27th of December, the sky being screened by dense dark clouds; and the atmospheric aspect has been gloomy throughout. The wind was northerly, though veering at times to the west, as well as the east; the breezes varied much in force, but were generally fresh; when strongest, viz., on the night of the 30th, the barometer reached the highest point of the week, being 30·45. The lowest point to which the thermometer fell was 43°, on the morning of the 31st. At present—noon—the thermometer is 52°, the barometer 30·20, the wind being light, nearly at east, and the sky continuing dark and gloomy. There has been slight increase in the sick lists of the ships in harbour, principally from diarrhœa and recurrent ague, which may in most instances be traced to more or

less of licence, and the irregularities connected with the seamen's manner of celebrating Christmas.

January 7th. This forenoon a survey was held on a number of seamen and marines, in order that it might be determined whether they were proper subjects to be removed from the numerical strength of the squadron, and sent to England as invalids. Thirty-six such men were presented, but 14 only were invalided, the other 22 being considered fit subjects for hospital treatment, or capable of doing their duty, and consequently not coming within the provisions of the law which regulates, or ought to regulate, this kind of naval court. Its proper objects are, to relieve men from labour, at the same time relieving the service from their dead weight, when chronic disease, or incurable incapacity, render them long or permanently incapable of duty; and when, looking to the condition of the subject only, without reference to the service, change of climate from the place where he is to another at a distance, in connexion with that which he must encounter on passage, promises to prove beneficial to his health. These were the principles which guided the surveying officers to-day; and it would be well if they alone were allowed to influence decision in all similar cases; if questions as to fitness, arising out of general conduct and professional capacity, were not permitted to be mixed with the simple one which ought to be tried, that, namely, of present and prospective health.

Much evil is inflicted on the service by the looseness with which men are often admitted, and the facility with which they are as often invalided, together acting as a premium on incapacity and misconduct, and causing an apparent force considerably greater than the real. A certain not inconsiderable number of men, rated and paid as seamen, may be said to be constantly on passage from and to England; going out as recently volunteered men, and returning as invalids. When discharged as invalids, after spending their wages, they make the best of their condition, volunteer afresh, and are too often accepted; but partly from incapacity, partly from bad conduct, and partly, perhaps, from bad

health, the result of the latter, they are thought fit to be surveyed, and are again declared to be proper subjects for invaliding, soon after arriving on a foreign station. Thus they get on, in this circle of malingering, illness, and fraud, they proceed, enumbering and plaguing the service, till they finish the term which entitles them to a pension, which ought to be the reward of meritorious conduct, long continued, and which they consequently should never obtain. Considering the difficulty often encountered in manning ships, and that commanding officers are not therefore always so scrupulous respecting the qualities of volunteers, as they would otherwise be, and are apt to become soon after, when better men may be found; considering also, that when the object is to get a ship, such men misstate their ages, and conceal complaints difficult of detection, which they soon after parade and exaggerate, the evil, though universally felt and acknowledged, will not be easily got rid of. But if officers called on medical surveys will do their duty faithfully and fearlessly—surgeons and captains together—looking to the subject entirely as a medical one, and divesting their minds of every other consideration, there can be no doubt that the grievance, though not abolished, would be rendered much less than it has been, and, notwithstanding late restrictions and guards on invaliding, particularly the surgeon's "solemn declaration," continues to be.

Of the 14 men invalided this forenoon, two were for ruptures; the others were chiefly cases of chronic flux and fever complicated with ague and recurrent, now much the most prevalent of the three principal forms of the endemic diseases of the country. Open intermittents are comparatively rare, and when they appear, are seldom primary, being in almost every instance secondary and recurrent. Ulcer also, when it occurs, is most frequently found in the cicatrices of former sores.

January 9th. On the afternoon of the 2nd, rain began to fall, and continued, for the most part heavily, during 100 hours, the wind at first being light, from the southward, but shifting to north-west, and then blowing freshly. On the 5th, with strong

northerly wind, the thermometer fell to 37° , at 8 A.M., in the open air, the lowest point yet noted in the Minden, though there was ice on shoal water in the neighbourhood of Tinghae. At the same time the barometer, which had fallen, with preceding light southerly winds, and increase of temperature, rose, and now stands at $30\cdot35$, the sky being darkly clouded, with the thermometer at 42° . The week has been the coldest yet experienced at this anchorage, though not so cold as it is represented to have been at the same time last year. Still it is cold; more so than might be expected, considering the latitude (30 north), insular position, moderate elevation, and cultivated surface of the surrounding land. Notwithstanding the warming or moderating influence of these circumstances, however, the cause of severe cold sometimes experienced here, is sufficiently obvious; and consists in the proximity of the island to the mainland of China, backed, though at a considerable distance, by the elevated mountains of Thibet, where the cold condensed air in winter rushes over the intervening plains, reaches these islands, and extends far beyond them to the south. General inundation of the level land, natural and artificial, the sheet of water being very shallow, for the most part, contributes to the refrigerating process. The regularity with which the periodic winds, called monsoons, alternate, is remarkable; the southerly setting in very steadily with the vernal, the northerly with the autumnal equinox; each continues to prevail during six months, though occasionally disturbed, in the neighbourhood of the high land particularly, by local causes, chiefly, perhaps, of electrical origin. They arise from the same natural agency as the sea and land breezes, which alternate daily at Jamaica and in the vicinity of other elevated positions within the tropics.

Little change has been observed either in the form, frequency, or force of disease during the week. Periodic fever, ulcer, and flux, particularly the last—in most cases recurrent, continue, and will continue, whether in a primary or repeated shape, to be the principal objects of attention and of treatment here.

January 16th. Last week was the most wintry yet experienced.

The 10th was clear and warm in the sun, but frosty at night. Rain, which fell on three days, was mingled with hail and sleet yesterday; and snow is lying on the neighbouring heights. Early this morning the mercury sunk to 32° in the thermometer; more snow fell in the night; it is now blowing strongly from N. W., and is extremely cold to sensation. The barometer is 30.50; the clouds are dark and massive; the sea is of a dark brown colour, while the hills are white; and the whole scene has more of a hyperborean character than that of many English winters, though the place is more than 20 degrees nearer the equator than the most southern part of Great Britain.

There has been slight increase in the sick lists of the ships in harbour, but more from diseases dependent on simple atmospheric action, than augmentation of endemic maladies; yet the number of catarrhal and rheumatic affections has not been large, not so large, indeed, as, considering the weather and the duties of ships' companies, might have been expected.

January 21st. This morning the Apollo frigate, now employed as a troop-ship, sailed from Hong Kong, on her way to England; and though she has been before referred to in connexion with her present employment, she is again noticed for another purpose. She left Plymouth 13 months ago, as already stated, with troops for China, in company with the Belleisle and Sapphire; proceeded to the Yang-tse Kiang, and was employed there till the signature of the treaty of Nanking; has since been employed upwards of three months at this anchorage. During the whole period she has been healthy, absolutely and relatively. While employed in the river she had a few cases of malignant cholera, the product of external causes; but from disease which is supposed, and legitimately supposed, to arise from agency within, and peculiar to, the ship herself, there was comparative immunity. As everything efficiently connected with the health of seamen, whether in the way of increase or diminution, and calculated to explain the mysterious difference, alluded to above, as being often exhibited by ships serving together, under the same general circumstances,

deserves to be carefully examined and recorded, the case of the Apollo seems entitled to notice.

From repeated conversations with the intelligent Commander, as well as with the Surgeon, respecting the means employed for cleansing, ventilating, berthing, &c., constituting the interior economy of the ship, and management of the ship's company, it appeared, that though everything was judiciously and humanely ordered and executed, the principal peculiarity consisted in the measures employed for cleansing and purifying the lower parts of the ship. Water was let in, and pumped out, regularly and frequently, but with varying frequency, according to the state of the weather. When temperature was not very high, the operation was repeated three or four times a week, but daily in very hot weather; and by it, though the space under the limber boards was never absolutely dry, slight leakage from without, and various impurities draining and descending from within, were never allowed to accumulate, decompose, and evolve gases, which, together, probably, with more positively deleterious powers, produce the sensibly offensive qualities of bilge water.

"That a leaky ship is a healthy ship," is an old saying in the navy, possessing the pithiness of a proverb; whether it is as true as those terse and simple sentences generally are, is a question which well deserves to be tried. It is commonly believed that a dry state of the lower parts of ships, as well as of the inhabited decks, is highly desirable, and that all means should therefore be used to secure it. Respecting the last, so far as it is compatible with necessary cleanliness, and not accompanied by other processes injurious to health, there is no doubt; nor need there be any, perhaps, respecting the first, supposing it could really be obtained. But it is more than doubtful whether, in a great majority of instances, absolute dryness, in the most dependent positions, and under the limber boards, can be realized. If it cannot; if, after the pump well is dried by rubbing with cloths, and swinging stoves, there is fore and aft, under the flooring, abundance of retained moisture, or a quantity of confined and stagnant fluid,

yielding copiously, under high degrees of heat, gaseous products, which are always offensive to the smell ; often, it cannot be questioned, highly injurious to health ; and at the same time favouring decomposition in contiguous parts,—it is certainly not unreasonable to conclude that it would be better to wash the parts well and frequently, than to leave them in such a condition.

A swampy soil, which is occasionally flooded, ceases to give out its poisonous miasmata, while covered by water : it does not yield them copiously till some time after the water guard is no longer complete, evaporation having removed part of it ; nay, it does not furnish them in the greatest quantity, and with the greatest power, till the drying of the surface is pretty far advanced. Could it be flooded daily ; were it possible to pass a full stream of water over its surface rapidly every twenty-four hours, it is more than probable that its febrile agency would be much lessened, if not abolished. For similar reasons, and by an analogous operation, it may be that the frequent admission and expulsion of water into and from a ship, may prevent or remove the emanations injurious to health, generated within her. It may be that there is strong affinity between the emanations in question, and water thus admitted, and that thus the former are rapidly and effectually discharged with the latter, nearly as fast as they are formed, and consequently without effecting much mischief. The operation must have the power of ventilating, to a certain extent, a part of the ship where ventilation is a very difficult, almost an impracticable process ; and thus, by mere mechanical action, prove beneficial. But by whatever means, and to whatever extent, the practice may prove, or have proved, effective in the preservation of health on board ship, it is so simple and easy of application, that it should not be allowed to pass without consideration, and ought to be fairly tested.

Its consideration naturally leads the mind to the essential cause and prevention of fevers originating in ships, especially of that which occurs so frequently, and proves so fatal, in the West Indies. The writer served some years in that part of the world,

saw much of the disease, was interested in its operation, and studied it with some care; but having laid the result of his observations before the profession, he will not, as indeed he ought not, except incidentally, enter on the matter in this place. He will limit himself, at present, to saying, that he satisfied himself, when on the spot, and no subsequent information has shaken the belief, that the cause of the disease is often in the ship, and deduced from her, being an aerial product of her decomposable materials, though associated with, and in some way dependent on, a morbid atmosphere, emanating from adjacent land; that such is most evidently its source, when it becomes very prevalent, and possesses much fatal force, as often happens at sea; and that it is generated independently of interior want of cleanliness, accumulation of vegetables, or other filthy and rapidly decomposing substances, on, or under the decks; as ships which are absolutely clean, in the strictest sense, in every part which can be reached, not only on deck, but in the holds, store-rooms, &c., suffer often most severely.

Knowing the injurious effects of moisture in excess and continuance on the human body;—knowing the power of moisture with heat in precipitating decomposition, and generally the pernicious influence of the products of decomposition on health, there is, as has been stated, a well-founded opinion, especially in the West Indies, that decks should be kept as dry as possible; and the opinion is commonly acted on in practice, as far as regard to cleanliness will permit. By a parity of reasoning, the same practice should apply, even more rigidly, to the lowest and most dependent parts of the ship; and in a great majority of instances, it is applied, throughout the service, in the West Indies,—it is believed, universally. But the question recurs—can it be efficiently applied to these parts—can the object sought, absolute dryness, be obtained?

In accordance with the view that dryness, at the lowest points, is not only desirable, but obtainable, to the degree, at least, in combination with perfect cleanliness, of favouring health, it was

common sixteen years ago, and the practice was continued not long since, to institute, soon after arriving in the West Indies, especially if there were any appearance of fever becoming general in a ship, a thorough process of clearing, cleaning, and drying her in every part. The means usually employed were, taking all stores out, and exposing the whole interior, from the hatches to the keel, whitewashing, and letting down stoves for some time, till all doubt of dirtiness or dampness was removed. But it happened frequently—more frequently than otherwise—that fever, if it had begun, instead of being arrested or moderated, became more frequent and severe after than it had been before; and often set in at no distant period, if it had not shown itself previously. This relationship the writer pointed out, and offered some remarks on, both in the “Memoirs of West Indian Fevers,” and the “Statistical Report on the Health of the Navy,” in the West Indies, especially the former. He was satisfied then, as he still is, that the process in question did not answer the laudable end for which it was ordered, that, namely, of staying or retarding the march of the destructive disease; nay, that it often precipitated the eruption of the disease, and rendered it more violent.

Looking at these things together, the obscurity still surrounding the origin of ship fever, more particularly the West Indian, and the conflicting opinions to which it has given rise, it becomes a pressing question, more especially as applied to that region, whether the attempts to keep the more dependent parts of a ship dry, should be continued; or whether it would not be advisable to abandon, at least for a time, attempts which are not successful; to limit, but enforce, dryness on the decks where the crew live, and other places where it can be perfectly obtained; and to wash out frequently and thoroughly the other parts, by the free admission, and forcible expulsion, of water. At any rate, this method of purifying the inferior parts of vessels, which is recommended to consideration for the service generally, is eminently entitled to a fair trial in the West Indies, since the practice heretofore generally adopted has failed, too often signally; and as experiment

alone can decide the question, experiment should not be spared. There is a large mass of evidence tending to prove that the cause of West Indian fever on board ship, when it becomes epidemic, and endued with much fatal force, is essentially dependent on a chemical process, proceeding within the vessel, and that it proceeds principally from her lowest interior parts, to which the ordinary means of cleaning, drying, and ventilating, cannot effectively reach. It might be, as was suggested above, that if fresh water were admitted daily, the febrile emanations would be absorbed, soon after they were set free, and discharged speedily and effectually by the water, when ejected. It is certain that the spaces under the lumber boards and lining would be kept more thoroughly clean in this way than they generally are; and thus, apart from all problematical, though important, advantages, a palpable benefit would be conferred.*

* The late lamentable case of the *Eclair* has given fresh and more moving interest to the subject, and leads us to ask more earnestly how the intrinsic causes of disease, especially of fever, in ships, may be most easily reached and effectually removed. Might not the process noticed above have been applied beneficially?

Every thing in the progress, character, and cessation of the disease in the *Eclair*, so far as the writer has the means of judging, points to its local origin, and shows that it was generated on board, its cause being the product of chemical action within the vessel, probably in her lower and least accessible parts. It has been alleged that the disease was propagated by personal contagion. This is not the place to discuss the subject, but it may be asked in passing, where are the proofs of the allegation? The great cumulative argument and the only one which can satisfy rational scepticism, *that, namely, of its extension to healthy persons living among diseased persons, after the latter were removed from the place where they sickened, is altogether wanting.* Had any one person attending on or communicating with Dr. Rogers and the other fever patients, after they were moved from the *Eclair* to a sound ship, been affected, the person so affected, not having been on board the *Eclair*, the case would assume an entirely different aspect.

Contagion, personal communicability, or self-propagation from diseased to healthy bodies, would then become necessary to account for its progress,

January 23rd.—Since the last meteorological note, a week ago, the weather has been steadily, and, on the whole, increasingly cold. At eight o'clock this morning, the mercury in the ther-

but nothing of the kind happened. With removal of the affected from the *Eclair* and termination of the fever in them, the disease disappeared. It would be idle to dwell on the obvious meaning of these things further than to affirm, that the doctrine of contagion can derive no reasonable or honest support from them.

Another subject, so necessarily and conspicuously connected with the above as to arise irresistibly out of it, may be incidentally adverted to here. Does not the history of the fever in the *Eclair*, after her arrival in England, indicate the imperfection of our quarantine regulations, call for revision of the whole, and modification of so much of them as relates to our own shores and harbours? The disease ceased immediately and entirely when the crew was removed from the morbid vessel to sound ones, after her arrival in the Medway. Could the same or a similar course have been adopted, *that of removing every human being from the Eclair, and consequently from the febrific atmosphere evolved from inorganic substances within her*, when she anchored at the Motherbank, much suffering, and some mortality, might have been spared. This may appear a bold assertion, but who, with the above facts before him, and with a show of reason, will be bold enough to gainsay it? It might be too much to aver, that no man would have sickened after removal, as some might previously have received the poison, but it may safely be affirmed that by such a measure, and only by such, could the source of contamination and danger be shut up. Had the hands of the authorities at Portsmouth not been tied by the quarantine laws, and had they, as they no doubt otherwise would have done, taken the whole crew out of the *Eclair*, either together or the sick and the sound separately, which the writer thinks of little comparative importance, all would have been done that could be done, or was necessary to do. In that case, many, perhaps all, who remained of the vessel's crew, certainly every one who was afterwards sent abroad and sickened, would have escaped.

These things give rise to serious reflections; they should also give rise to different and more appropriate measures; to regulations which, without endangering the healthy in the slightest degree, should contribute by every possible means, to mitigate the suffering and arrest the progress of a malignant malady, which would, in short, permit us to act as the friends of the sick and dying who may seek our harbours. Such thorough reformation of the quarantine laws of Europe as might suffice to purge them of their cruelty, ab-

mometer, with a strong breeze from north-west, a cloudy sky, and the wind falling directly on the instrument, sunk to 28° ; the barometer, at the same time, had risen to 30.68 inches. The first is the lowest yet experienced during daylight. Whether it may have been lower during some part of the night, cannot, as there is no self-registering thermometer, be determined: the last is the highest point reached at Chusan, or since the ship entered the Chinese sea. It ought to be stated that the barometer, from which all the preceding indications have been taken, has a lower pitch than two other instruments in the ship, by from 12 to 20 100th parts. Rain, mixed with sleet and snow, fell heavily on the night of the 18th; with that exception, the week has been dry, alternately bright and cloudy, though the latter condition has predominated; and the positive reduction of temperature, coupled with frequent high winds, has produced a penetrating and disagreeable amount of sensible cold.

There has been, as in the preceding week, slight increase in the total number treated in the ships, more cases, chiefly of bronchial disease, or other affections arising from sudden diminution of external heat, having been entered than discharged. But the affections have been slight, and there were remarkably few cases of rheumatism.

January 30th.—The weather of the last seven days has been less rigorous than that of the preceding fortnight; on the whole, it has been fine, generally moderate; and, judging by sensible impressions, favourable to health. Rain fell sparingly once; the breezes have generally been fresh, for a few hours daily, strong, and northerly. The thermometrical range has been considerable;

surdity, and unnecessary obstructions to commerce, would require the co-operation of other states, and might be difficult, if possible, to obtain; but there is no apparent difficulty in so modifying our own port regulations, as to render them at least harmless, and take from them the power of prohibiting for a period—a period on the proper use of which the issue of life or death may depend—the application of efficient means to arrest the progress of a pestilential disease.

the lowest degree noted in the morning was 35°, the highest, which was on the 26th, with light southerly wind, being 56°. The barometer also oscillated considerably. With the light south wind, and warm temperature, it fell to 30°, rising with the strong northerly breeze and cloudy sky, to 30·40, where it now stands.

There has been little change in the ships' sick lists during the week, either in regard of number of cases or nature of disease. The tendency, however, has been to diminution; and when the thermometrical state of the weather is considered, in connection with the duties of ships' companies, the paucity of bronchial and rheumatic affections, especially the latter, continues to be remarkable.

February 4th.—Two men died early yesterday morning, in hospital, whose cases are worthy of notice, chiefly as showing the deep and dangerous inroads of miasmatic poison, its powerfully reductive, yet occasionally insidious action, and the suddenness, leading to surprise, with which it sometimes eventually destroys life. Similar cases have been noted previously, but it is thought that these may not unprofitably be added.

Thomas Hill, private of the 98th regiment, was admitted on the 22nd of Oct., suffering from irregular intermittent fever and flux; is about 24 years of age; had been ill some weeks, having been attacked in the Yang-tse-Kiang, though neither the precise nature of his previous disease, nor its date, is ascertained. As in all cases of the kind, he was weak, emaciated, and prostrate, but not to the extent witnessed in many others; the face was pale and shrunk, and the lips were anæmical. The ague did not recur frequently after his admission, and the flux was never urgent, nor ever truly dysenteric. The dejections varied much, but were generally, in some degree, hienteric. Throughout, there was a ravenous appetite for solid food, and difficulty, notwithstanding the vigilance and strict order of hospital discipline, in preventing him obtaining surreptitious supplies of indigestible matter. On more than one occasion, there was slight general improvement, and temporary arrestation of the flux; but the periods of melioration

were always short and ill-defined. There was little, if any, concurrent increase of vigour; and the progress of the disease, though not with equal speed, or equally evident, was constant. For a fortnight previous to death, there was little intestinal disturbance, or complaint of any kind; and to hasty, superficial observation, he might have appeared convalescent. There was generally one alvine discharge daily, partly feculent, but consisting partly of undigested food, and containing more than a healthy proportion of mucus. The craving for food continued, and was indulged as far as seemed compatible with benefit or safety, the half diet of the hospital being allowed him. It may be observed in passing, that a morbid appetite, with excessive desire to gratify it, is common in many of these cases, and forms no inconsiderable hindrance to their proper treatment; because no argument will convince an ignorant man, who is at once weak and hungry, that he can possibly recover health and strength without the benefit of full rations, and indulgence to repletion in what he conceives to be restorative eating and drinking. This was more remarkably the case with T. Hill, than most others. He continued in the state noted above on the evening of the 1st of February; and when seen at one A.M. of the 2nd, nothing new appeared. Just before eight o'clock the same morning, the pulse was scarcely perceptible, the respiration being much hurried: there was mucous rattle, and the aspect of rapid sinking. Under the influence of diffusible stimuli, there was temporary partial rallying, but death took place early next morning.

On post-mortem examination, the following was the amount of morbid condition, and results, detected. There was serous effusion, though to small and not destructive extent, in the peritoneal and pleural cavities, and in the pericardium, with partial hepatization of the lower lobe of the right lung, and pleuritic adhesion at the upper part. The colon was abnormally large in diameter, in parts atrophied, in other parts hypertrophied; the mucous surface having a dark leaden colour, for some distance from the cœcum, changing towards the rectum, where the tube was uni-

formly thickened, to the mottled appearance of some varieties of black marble. The other organs, though generally small, were structurally entire; the mesenteric glands were slightly enlarged.

J. Hutchins, æt. 20, a seaman belonging to the *Algerine*, was first received into hospital on the 6th of November, labouring under fever, complicated with flux, was discharged, cured, to his brig, on the 6th of December, and re-admitted on the 2nd of January, 1843. Before his first admission, he had been many weeks under medical treatment, first for some form of cholera, then for intermittent fever, and finally for that, with flux super-added; the disease originated when the vessel was employed, till a few days before he was sent to hospital, in the *Yang-tse-Kiang*. On his second admission, it was stated that there had been recurrence of flux, and there was some emaciation, but he said his appetite was good; and the tongue, skin, and pulse, gave no indication of disease. When the dejections were examined, they were found to be liquid, lenteric, though not very numerous, sometimes amounting to four or five, but more frequently not exceeding three in twenty-four hours. In this case, in which respect it differed from all others, the facial colour was good, not being destitute of red intermixture, and free from the clay-coloured pallor, so universal in, and so characteristic of, the family of diseased action to which it evidently belonged. There is little doubt that the exceptional complexion referred to depended on the organic state of the heart, which, however, was not at first suspected, and, if it had, would not have been expected to produce such an effect. But the structural defect found after death did not occasion imperfect aeration of the blood, or anything approaching the *morbus ceruleus*; on the contrary, the floridity of the lips and cheeks, without a shade of darkness, indicated more than due operation of the air on the blood, when the power of the disease, which caused death, to blanch the former, and give the latter an earthy hue, is remembered. Soon after the second admission to hospital, the pulse at the wrist was observed to be slow, feeble, and irregular—mere slowness is not uncommon in

such eases—sometimes intermitting at every second impulse, sometimes much hurried for a few beats, and sometimes not numbering more than forty in a minute. This was its general character to the last; there were, however, no feelings of distress in the chest, nor was the respiration hurried or painful. Treatment made little impression on the lenteric purging, the only shape in which dangerous disease manifested itself. Though not rapidly; and with some short intervals of apparent improvement, he continued to lose ground, getting more emaciated and feeble, but retaining a comparatively healthy complexion. Within the last week, he said he was better, and stronger, but neither could be observed, and the disease was making fatal progress. Still nothing in his aspect or feelings led to the apprehension of impending dissolution, till the afternoon of the 2nd of February, when there was sudden invasion of insensibility, low moaning, and alternate dilatation and contraction of the pupils. The fit soon went off, and the intellect became clear; but the pulse continued to flutter, and the temperature to fall, till early next morning, when he died.

On examining the body after death, the brain, with its membranes, was found healthy. The lungs, with the exception of a small tubercle on the left upper lobe, were quite sound. The heart was normal in size, and in muscular, membranous, and valvular structure; but there was some dilatation of the right auriculo-ventricular opening, and the foramen ovale was inclosed, constituting the abnormal condition alluded to above, which caused the exceptional and contradictory complexion of the patient, although it is not clear on what principle, and by what process, it produced that effect; why there was apparent excess, rather than defect in the act, by which blood passes from the venous to the arterial state, and consequently a crimson, instead of a leaden hue, on the surface. At no time were there the sudden, distressful startings, gasping, and awful feelings of impending death, so eloquently described by John Bell, as the effects of such organic imperfection in the adult heart.

In both of these cases, final restoration to health had long been

doubtful—for some time, all but despaired of; but in neither was death considered near eighteen hours before it happened. There had even been something like improvement some days previously. It is worthy of remark, that, on the same day, and nearly at the same time, a man died suddenly on board the *Thalia*, at the same anchorage, when death was not expected. He had been only a few days on the surgeon's list, for ill-defined, fugitive pains, but had lost strength for some time, and had become emaciated, the cause of which was not apparent during life, nor did examination of internal organs, after death, explain it. Hence it is concluded, however unsatisfactory the conclusion may be, that there had been some prevailing poison at work in the system, weakening, and finally exhausting the powers of life, at the age of 37, without the instrumentality of wearing excitement, or notable organic injury.

It is also worthy of remark, that when these deaths happened, the weather was what is called close, there being scarce any wind, continued light rain, and darkly clouded sky, with depression of the barometer; and further, that a few weeks ago, during similar weather, some deaths happened in nearly the same circumstances. Such things deserve to be noted, though their meaning, if indeed they have any, as to cause and effect, may be difficult to determine. Whether the connexion between the weather and sudden death, in the cases stated, was merely coincident, or in some way efficient; and whether, with the sensible, there was not associated an electrical condition of the atmosphere, which, acting on bodies much debilitated, and labouring under great privation of vital energy, precipitated death, are, at least, curious questions, and not undeserving of study.

February 6th.—The last day of January was cold and dry, with strong breezes from north-east. It rained, with little intermission, night and day, on the 1st and 2nd of February, with light variable airs, the thermometer rising to 56°, and the barometer falling to 29.82, while the sky was densely clouded, more than usually dark in the day, and the atmospheric impression was sensibly depressing. The 3rd was dry and cold, with north-west wind: rain fell abun-

dantly on the 4th, with fresh breezes from the same quarter : yesterday again was dry and cold, with fresh breezes still from the north-west, the thermometer falling and the barometer rising. Snow lay a few miles off, at an elevation of 1,800 feet. It is now clear and fine, with light westerly winds, and snow still lies on the heights. At daylight, the thermometer was at 34° , rising to 37° , at eight A.M., in the breeze, the barometer, at the same time, being 30.25.

There is little change in the number on the sick lists of the ships in harbour, nor anything in the character of the cases calling for remark, unless it be to repeat that formerly made respecting the comparatively small proportion of pulmonic or articular diseases, or other affections ascribed to simple atmospheric action, through the medium of temperature.

Another case is noted here, in illustration of the various aspects of disease, induced by the malarious poison of the region, in combination, succession, or alternation. The subject, D. Hales, private marine, æt. 23, was received from the Cornwallis, on the 21st of October, for the treatment of ulcers on both feet, the prolabium, and interior of right cheek, extending from the commissure over most part of the mucous surface. When admitted, the general health was not apparently much affected ; but he had suffered in the Yang-tse-Kiang, first from intermittent fever, then from flux, and afterwards from ulcer, one form of disease setting in as the other subsided. After his reception into hospital, the ulcers on the extremities proceeded favourably, and were soon cured ; but those affecting the mouth and inner aspect of right cheek, rapidly assumed a severe, and at one time a formidable appearance, bad symptoms here increasing, in a very great ratio, with the healing of the others. The whole cheek became tumid, highly inflamed, and excessively painful. Numerous sloughs were detached from the mucous surface ; phagedenic ulceration, embracing the upper lip, near the right commissure, extended some distance along the cheek, destroying every tissue as far as it went, and, at one time, threatening its entire abolition ; yet the appetite was good, and the

pulse little affected. After a while, and under carefully-adjusted treatment, the destructive process was arrested, and restoration, to a considerable extent, took place; and there was less loss of substance, and deformity, than had been apprehended, though the cheek continued tumid, puckered, and discoloured. When cicatrization was completed, intestinal flux set in, and, though nearly subdued at present, has persisted in various shapes, and with different degrees of severity, ever since. The number of dejections have been from two, to five or six, in twenty-four hours; they have been, in some degree, lenteric, and more or less liquid, but always beyond the healthy degree. Generally they have contained more than the proper proportion of mucus, and sometimes, though seldom, a small quantity of blood. Strength of course failed, under such a long-continued disease, but not to the extent that might have been expected. The tongue varied much, but was always moist, frequently pale on one side and florid on the other, or red and white in patches. He has never had thirst, the pulse has continued good, and the appetite for food undiminished. About three weeks ago, when there was scarcely any flux, or intestinal irritation, and when he was getting stronger, the gums became tumid, and there was copious salivation, as if from mercury, no portion of which had been administered; and ulceration was again established in the lining membrane of the upper lip and right cheek. At that time, however, the ulcerative process made comparatively little way, and was soon arrested. At present, he has seldom more than two tolerably healthy dejections daily, and he may be said to be in a feeble and uncertain state of convalescence; for, warned by the fallacious promises often given in former cases of this sort, hope is not sanguine; and ultimate recovery is considered still doubtful. Various modes of management were necessarily applied to the various, often conflicting, aspects of the disease. It would be difficult to estimate the value of each, but he appeared, at different times, to derive considerable advantage from the arsenical solution in infusion of buchu.

February 13th.—The week just ended has been dry, and uni-

formly fine for winter. The lowest degree of atmospheric temperature indicated by the thermometer was 35° at sunrise, gaining ten degrees at eight, A. M.; the highest, 52° , at one, P. M. The barometer has varied from 29.90 to 30.35. The winds have generally been northerly, but one day shifted to the south of east. During the day there have been nearly equal portions of clear and cloudy weather; the breezes, except on one day, have been light; and the atmospheric impression has been agreeable.

The ships in this part of the command, and so far as is known of the others, are healthy. No death has occurred in hospital, the only week marked by such an exception since it was opened.

February 20th. The weather of last week was very various, but on the whole had more of a wintry character than the preceding. The thermometrical range was between 34° and 54° ; the first, before eight, A. M., on the 16th; the last, at one, P. M., on the 19th. Rain fell almost constantly, mingled with hail and sleet, for 22 hours, on the 15th; next morning snow lay more thickly on the neighbouring heights than previously, and still lies, though there has been bright sunshine during great part of three days. It is now fine, with the barometer at 30.36; thermometer, 46° . Excepting one day, when it veered to the southward, the wind has been northerly, with varying degrees of westing. On the 16th, it blew a gale from W. N. W.; at other times the breezes were moderate.

Though there have been some additional cases of catarrh and diarrhœa, the ships' companies continue healthy. Few patients are now sent to hospital, and a considerable number have been discharged lately; there are only 42 remaining, mostly convalescent; the greater portion of the cases are ulcerative. Another week has passed without a death.

February 27th. There has been considerable and generally progressive increase of atmospheric heat in the last week. At sunrise on the 21st, the thermometer fell to 35° ; this morning at the same time, it stood at 49° ; yesterday, at one, P. M., the sky being clear, and no breeze moving, it rose to 60° . The wind has

been light and variable; during the last two days it has been so nearly calm that the direction could not be determined. The barometer did not fall below 30·36, till the last two days, during which it has been going down, and is now under 30 inches. It is beginning to rain, and will probably, judging by the barometer, and the common course observed here, continue through the day; after which, if the changes follow each other as usual, the wind will shift to the northward and blow strongly, with rapid reduction of temperature, and rise of the barometer.

There is nothing in the health of the squadron, or the condition of the patients in hospital, calling for notice.

March 6th. The morning of the first day of the week was singularly fine, cloudless, and warm; the thermometer at sunrise at 56°, stood rising to 60° at eight, A. M.; the barometer at the same time falling below 30, with light southerly airs. In the afternoon, the wind shifted to north-west, increased rapidly, and at midnight blew hard, the barometer rising, and rain falling, at times heavily. Next morning the thermometer sunk to 36°, being a reduction of 24 degrees in 24 hours. Since that time, the temperature has been rising steadily. This morning the thermometer stood at 46° at sunrise; the breezes have been light and variable, but a northerly direction has predominated.

The ships of war in the neighbourhood continue healthy, although there is slight increase in the sick lists, chiefly from catarrhal affections; when, however, the sudden and striking atmospheric changes are considered, the amount of such cases is trifling; and the almost entire absence of rheumatism is very remarkable.

March 13th. The last week was dry, clear, and fine throughout, with breezes varying both in force and direction, but generally rather strong, with predominant northing. On the morning of the 7th, the thermometer fell to 36°, and at one P. M. of the 11th, rose to 57°, which were the lowest and highest degrees of the period. The barometer has varied little, standing near 30, though it once rose two-tenths of an inch higher.

There is reduction in the ships' sick lists, and the naval force is

now healthy in a high degree; the proportion unfit for duty, from both disease and injury, being under three per cent. of the employed. No case has been sent to hospital.

March 20th. On the 14th, the thermometer stood at 42° soon after sunrise; yesterday, at three, P. M., it rose to 68° ; these were the extreme points during the week. The daily variation was considerable, but there was progressive increase of heat till this morning. The breezes have been light and variable, and the sky was clear till the 18th, when rain fell pretty heavily for some hours. The 19th was calm, clear, and warm. This morning the wind shifted to north, and is now blowing freshly, with massive black clouds, and slight rain. The barometer remained steady, close to 30 till yesterday, when, with calm, bright weather, it fell to 29.76; it is now upwards of 30, and is rising, while the thermometer is falling.

The ships' companies continue in the enjoyment of excellent health; and this morning there were only 35 patients in hospital, more than half of whom are affected by disease contracted last summer and autumn; most of them, however, are convalescent.

March 27th. The thermometrical indications of this week have not differed materially from those of the preceding, although the range has been rather less. On the morning of the 21st, soon after sunrise, the mercury fell to $41\frac{1}{2}^{\circ}$, the lowest; and rose on the 26th, at one, P. M., to 65° , the highest point reached. The weather has been unsettled; the winds have generally been light and changing, and rain fell on three days. The barometer has scarcely risen above 30; during the last 24 hours it has been falling, and is now lower than it often is here, viz., 29.70. Rain has fallen all the morning, and continues, without a breath of wind.

The sanatory state of the squadron is so perfect, and so similar to what it has for some time been, that no remark respecting it is required.

The following case deserves notice, on account of the obscurity of its notable signs, the apparently slight degree in which organi-

sation, as well as the alimentary function, was affected, and, connected therewith, the rapidity of its course. The subject, Wm. Marsh, æt. 43, A. B., a spare, but till lately healthy man, was received into hospital on the 27th of February, where he died on the 26th instant. A month before, he was one of a party in an open boat, which lost her way, and in which he was exposed three days and nights to cold, tempestuous weather, with very inadequate supplies of food. Soon after the exposure, he complained of pain in the loins, but there was no constitutional disturbance, and the local pain soon ceased under the use of external applications. On first appearing in hospital, he said he was so weak that he could not walk without stumbling, and thought he had never been so strong as usual since he was cast away in the boat, that the extent of weakness which he now felt had come on suddenly, but that he had neither pain, giddiness, nor uncomfortable sensations in the head; that he had no pain anywhere, and that his appetite was good. The complexion was sallow, the tongue whitish, the skin rather dry, and there was apparent emaciation; but, as has been stated, he was naturally thin, and his complexion when in perfect health was dusky, with slight disposition to sallowness. The pulse was normal, and no prominent disturbance of any particular function could be detected.

Considering the state of the skin, the appearance of the tongue, and that the bowels were rather torpid, small quantities of calomel, opium, and ipecacuanha, in combination, were administered, with the diaphoretic mixture of the hospital, an occasional aperient, and warm baths. No change worthy of notice took place for 10 days, except that the tongue became rather dry and smooth, losing its whitish colour, and that there was slight thirst. It was evident all the while that there was something materially wrong, but what it was could not be determined; for although he made no complaint, nor admitted that he had any, except weakness; and although the pulse was natural, the appetite good, and sleep sound, there was progressive emaciation. He had the hospital half diet and enjoyed it. But at the time indicated, viz., when 10 days in hospital—

8th of March—cough, with copious expectoration of thin mucus, without dyspnoea, set in. A large blister was applied to the thorax, squill being added to the diaphoretic mixture, and eight days afterwards the pulmonic symptoms ceased. Now, however, symptoms of intestinal disturbance, though of no urgency, manifested themselves. He had two or three copious liquid evacuations daily; and this condition, though twice removed for 24 hours, more or less continued till the end. With it there was return, within five days, of cough and expectoration, the sputum on this occasion being tinged with blood; but these symptoms did not continue more than two days. At this period, the skin being dry and more harsh than it had been, the tongue becoming red, dry, highly glazed, with increased thirst, and appetite for food rather keen, questions respecting the urine were asked; and it was found that in the 15 following hours, on the 24th of March, he had discharged 125 ounces of a pale coloured urine, without smell. On the 25th, the quantity, during 24 hours, amounted to 146 ounces; on the 26th it fell to 120. It continued pale, and without smell; it was rather under than over the healthy specific gravity; and 12 ounces of it yielded, on evaporation, 50 grains of an intensely bitter saline tasted extract. At nine, A. M. of this day, the 26th, he said he felt stronger; the skin was not so hard and parched, and the tongue was more moist. The pulse was 68; there had been two lienteric stools; he had a good appetite, and was entirely free from pain or uneasiness. At one, P. M., he took broth; soon afterwards, some wine; and at three, without appearing to be worse, making the slightest complaint, or effort, to attract notice, expired.

On examining the body 20 hours after death, the following appearances presented themselves. Under the dura mater one ounce and a half of serous fluid; cerebrum appeared shrunk; slight softening of the left hemisphere of the cerebellum. Extensive pleuritic adhesion; right lung of a dark colour externally, its structure being partially hepatised, generally congested; a vomica near the size of a pullet's egg, in the middle of the superior lobe; left lung crepitated imperfectly; granulation in two places

in the upper lobe. Heart and pericardium normal; also, liver, spleen, and pancreas. The stomach was much dilated, its coats being atrophied; in some places diaphanous. At the cardiac extremity, there was an annular ring of ulceration, with a purple colour, and approaching a gangrenous state; the pyloric portion was of a livid colour, terminating by a sharp line, which separated it in a marked manner from the other, which had a perfectly healthy complexion. The lining membrane of the small intestines was much congested throughout; the colon and rectum had a leaden colour, were atrophied in some places, and lacerable in a remarkable degree. Mesenteric glands moderately enlarged. General hyperæmia of the kidneys; and perhaps, for this is doubtful, slight dilatation of the ureters. The parietes of the bladder were thickened, while its cavity was diminished, and the mucous membrane was unduly vascular.

This is an interesting case, though it cannot be called an instructive one, at least therapeutically. It shows, among other things, if such evidence were necessary, the inadequacy of our art to stay the progress of dissolution, when, however perceptible it may be, it has no violent or well-marked signs; and that our science fails even to ascertain in what the process consists absolutely, or how it is excited. There can be little doubt that the disease was contracted during the period of exposure and privation in the boat; but what was its essence, and through what channels did it lead to death? The effects were not such as could be traced to simple reduction of external heat, coupled with scarcity of food; and to say that the cause was identical with, or similar to that of intermittent fever, would, in this instance, be mere assertion, unsupported by evidence of any kind, even that of irregular periodic movements. Then how were the appearances exhibited during life to be reconciled with the organic lesions unfolded after death; especially the continued desire for, and taking of, food, no uneasy sensation ever being referred to the stomach, with the extensive disorganisation manifested in the alimentary organ? Whatever its cause may have been, the writer believes that the disease

essentially consisted in constitutional decay; that, through failure of vital power, assimilation and nutrition were first perverted, and finally destroyed; that thence resulted the obscure, and apparently inconsequential morbid manifestations, as well as the organic injuries; that those organic injuries were, therefore, the effects, not the cause, of the atrophy, and that they were developed during the progress of the malady; most of them near its close. He knows that such opinions would be ridiculed, or sternly repudiated by the exclusive localists. But he is convinced that there are such things as idiopathic fevers; and to his mind no reason appears in the nature of things, why there should not be a non-febrile, a slower, and less palpable process, by which the functions of life may be destroyed, independently of primary and causative organic lesion; or, at least, of such as can be traced, which is tantamount, as far as our conclusions are concerned. Towards the termination, a diabetic state supervened; at any rate, there was diuresis beyond the healthy standard, which, no doubt, contributed to the fatal issue. This probably depended on the arid state of the skin in some measure, and was partly vicarious of the cutaneous secretion; but both it and the associated condition of the surface, as well as antecedent, but less obvious portions of the morbid entanglement, are believed to have been the effects of a primitive affection of the constitution, which occasioned fatal derangement of the balanced motions essential to health—a pervading, but indefinite state of disease, characterised chiefly by depression of vital energy, and diminution of organic power.

April 3rd.—The weather during last week was fine, although the first day was dark and windy; the others were clear and pleasantly warm, with variable winds, both in respect of direction and force; generally, however, light. The thermometer ranged between 48° in the morning, and 65° in the afternoon. The barometer oscillated between 30.10 and 29.76, where it now stands, and which being rather low for the place, as the wind is southerly, will probably soon be followed by rain. The ships' companies continue healthy.

April 10th.—The thermometrical range of the week has been between 53° and 63° . The barometer fell to 29.35, and has not risen above 30, the lowest indication being yesterday, with southerly winds; it is now rising fast, with fresh breezes from the north-west, which are increasing, with dense dark clouds threatening rain. The wind of the week has been very variable, and generally light; and though it rained on the 4th and 6th, the weather has, on the whole, been fine, the sky being bright, and the sensible impression agreeable. It has, at the same time, been highly favourable to health, as far as the condition of the ships have afforded evidence.

April 17th.—Much rain fell during three consecutive days of last week; the other four were fine, with light breezes from nearly every point of the compass. The lowest degree of the thermometer was 52° in the morning, the highest 65° in the afternoon. The barometer has been lower than usual here, seldom rising to 30, and once falling to 29.68. It is now 30, and ascending, with a strong breeze, which set in suddenly a few hours ago from north-west. All the ships' companies here, and in the neighbourhood, continue healthy.

April 24th.—The weather of the week just ended has been uniformly fine, and, judging both by sensible impression, and effect, highly favourable to health. At sun-rise, the thermometer was once as low as 52° , and one afternoon rose to 74° , but has generally ranged between 56° and 66° . The barometer's variation was between 29.78 and 30. The breezes were variable in direction, and of moderate force. The sky has been, for the most part, clear and cloudless, though rain fell rather heavily some hours yesterday evening, and in the night. There is scarce any disease in the squadron, and, therefore, no prevalent form of sickness. Where there is any tendency to prevalence, it is still in flux, periodic fever, or uleer, but it is, and has for some time been, so slight, as to be all but suspended; and the remark so often made of late, to the effect that the naval force is absolutely healthy, may be repeated.

May 1st.—During last week, there was considerable increase of atmospheric heat, the general thermometric range being between 65° and 70°. On the 25th, there was a thunder-storm, the first experienced for more than six months, with much rain. It has since rained frequently, but slightly; the sky has been overcast, with frequent calms, or light breezes from the south. The barometer has scarcely risen to 30, and is at present 29·80. All the meteorological indications show that the southerly monsoon, if not steadily set in, is at hand.

SECTION V.

Departure from Chusan.—Reflections on the prevalent diseases, and apparent causes.—Questions as to modifying and mitigating them.—Amoy ; its topography.—Kulungsu ; its topography.—Disease of the natives.—Disease in the British force.

SAILED on the 8th of May, in the hospital ship, for Amoy, on passage to Hong-Kong. Having been stationed nearly nine months at Chusan, with opportunities of observing the diseases of the place, and some neighbouring places, of becoming familiar with the boundaries of the anchorage, and of acquiring some knowledge of the adjacent towns and villages, reflections and questions respecting the connexion of the former with the latter, or what may be termed the hygienic influence of the locality just left, naturally arise. Its topography has been sketched already ; and the principal forms of disease have been frequently noticed, and more or less discussed. Other forms of disease, from which the inhabitants suffer extensively, are, in a great measure, unnecessary evils, their prevalence depending, chiefly at least, on filthy habits in their persons and residences, innutritious diet, and inefficient medical practice. There is comparative immunity from many diseases which, in most other places, occasion much suffering, reduction of industrial labour, and mortality. Primary organic inflammation is rare ; excepting slight bronchial affections occasionally, disease

of the respiratory apparatus, including phthisis, is not common ; nor is rheumatism frequent. The same thing may be affirmed of other diseases dependent on purely atmospheric actions ; and as men on service generally suffer much from these maladies, to be, in a great measure, free from them, is a great favour. But here two questions arise ; first, were the diseases by which the force was so extensively affected during the late operations—periodic fever, flux, and ulcer—absolutely necessary, inasmuch as they were the unavoidable offspring of the soil, and its products, under whatever circumstances they might be placed ; or, secondly, were they not artificial results of the agricultural economy practised, which, under different management, might have been, if not entirely, to a great extent at least, avoided ? The same questions might, perhaps, be asked respecting cholera ; and it is believed that the first question should be answered negatively, the latter affirmatively, especially in their application to fever and flux.

It has been stated that every point of land possessing soil is cultivated carefully even to the summits of high hills. It has also been stated that neither natural marsh, nor naturally marsh-like soil, has been observed in any part of these islands. The annual range of the thermometer is extensive, the highest point being 88°, the lowest 28°, of Fahrenheit's scale. The very hot weather does not, however, extend beyond ten weeks ; the cold is occasionally severe, but does not continue long ; and a great portion of the year has a temperature of a mild and most agreeable kind. There are not, as within the tropics, and in many places near them, wet and dry seasons—periods of alternate flooding rains, and parching droughts—but, on the contrary, occasional showers, at moderate intervals, to fertilise the soil and cool the air. South winds prevail in summer, northerly in the winter ; the latter are sometimes strong, scarcely ever violent. Calms are uncommon, breezes of various force, but generally gentle, blowing from some quarter. In short, the meteoric influences and the aspect of the country appears highly favourable to health. What is detrimental is believed to be chiefly the wilful work of man's

hands, or of his neglect, and perverse ignorance. If he acted his part intelligently and well, there is little doubt that this would be one of the most salubrious, as it is naturally one of the most favoured portions of the earth's surface. It would not be becoming to assert that ague, flux, and uleer, could be entirely banished by any human means; but it may be alleged confidently, that they might be much reduced both in frequency and force, if the inhabitants would abandon some of their agricultural and economic usages, supplying their place by other methods, simple in themselves, and at once more easily practised, and more beneficially operative. The same thing may be affirmed, perhaps even more confidently, respecting some other diseases, especially those of the skin, from which the natives suffer so much, and which are, in great measure, peculiar to them.

For these important purposes, the first simple, and most powerful instrument, is the substitution of wheat for rice culture. This would at once clear the country of nearly every quality allied to those of marsh land, which, in almost all low situations, and some elevated ones, by much care, and laborious management, it now possesses in excess. Little else is wanted, for the soil is generally deep, absorbent, and rapidly takes up all the moisture which falls on, or naturally runs into it. For expensive and laborious draining, now so extensively practised, and with such excellent effects, both in fertilizing and defecating the soil in many parts of the United Kingdom, there is here scarce any call. All that is required is attention to the obvious suggestions of nature, on one hand, and non-resistance to her easy requirements, on the other.

That wheat would grow luxuriantly, is concluded from the natural qualities of the soil, and the annual range of temperature, and is placed beyond doubt by the demonstration of patches which are allowed now and then to intrude on the sacred rice soil, and which speedily obtains ripe perfection there. Barley, and the American potato, there is no doubt, might also be cultivated with advantage. The latter plant has heretofore been excluded by the Chinese, though they long ago admitted, and now universally use,

tobacco, a native of the same country, and known for the same time; and it may be observed, in passing, as an instance of absurd exclusiveness, and in illustration of their determination to resist what is new, however useful, that they have not yet adopted another worthy native of America, the Turkey bird, although it has long been naturalised, and grows to great perfection, in the adjacent islands. Wheat is generally banished to the uplands, where water cannot be accumulated, and rice, consequently, will not grow.

Whether an equal extent of surface would produce as large a supply of nutriment under wheat as under rice cultivation, could not be ascertained on the spot, though many inquiries were made respecting it. This, the relative alimentation of particular grains, and esculent roots, in proportion with space, is an important consideration in agriculture anywhere, especially in a country like China, where population presses closely on the sources of food. But if it were, as it is believed it might be, proved to these people that an acre of wheat would give as much nutriment as an acre of rice, it is doubtful whether they could be induced speedily, taking all the concurrent advantages into account, to adopt it as their chief article of sustenance; as, with them, everything which is old is excellent, while whatever is new, is, for that reason, an abomination. Still there is hope. The long-continued intellectual dream must be dissipated, as the sleep of ages has been suddenly and violently broken. Change, not speedily indeed, but sure, will ensue; for the leaven has been introduced, which will ultimately, however tardily, "leaven the whole lump."

Next in order of importance are the measures required to correct the more limited morbid influence created and diligently fostered by man, and in no sense the necessary product of the soil and climate, but the results from canals within and around towns, and the condition of the towns in respect of form, structure, and sanitary municipal regulations. The water in the canals is either stagnant, or moves so slowly, as to encourage rather than hinder the growth of aquatic plants and reptiles; and they should either

be thoroughly cleansed frequently, or, which would be better, filled up, as they probably would be if the cultivation of rice were abandoned. To do all that is required besides, and that common sense indicates, for preventing the malarious exhalations of towns and villages, it would be necessary to change their entire plan, and great part of their structure; to widen the streets, build the houses, so as to secure ventilation, make sewers and gutters, and render compulsory the speedy removal of dirty, rapidly decomposing matters, from narrow, crowded lanes. When all is the reverse of this, and when it is considered that, during many consecutive weeks, the thermometer ranges between 80° and 88° ,—high walls surrounding a thickly-peopled, badly-built city, and preventing the purer breezes without from mingling with the foul air within, it may well excite surprise that such positions do not prove much more unhealthy than they are, and become every year absolutely pestilential.

It becomes more surprising when viewed in connexion with the domestic and personal habits of the people; and this is the last general subject to be noticed, as requiring entire change, to secure great increase of health and enjoyment. Unlike the others, it concerns almost exclusively the native inhabitants, and is expressed in one word,—cleanliness. As already noticed, the filthiness of the Chinese in their houses, and more especially in their persons, is almost incredible, is the principal cause of the mass of cutaneous diseases by which they are afflicted, and must be otherwise very injurious to health. Of water, except in tea-making, and some culinary processes, they appear to have no practical knowledge. Bathing, as well as ablution of the person, is unknown, and this is one of the many instances in which they differ from all other people, especially those of the east, inhabiting warm or temperate regions. They go literally unwashed from the cradle to the grave: the only thing in the shape of a substitute observed, was a cloth moistened with hot water, and passed lightly over the face and hands, by persons of distinction. Water, with soap, would do much for general health—almost everything to rid them

of their universal itch, and other loathsome affections of the surface. Can they be persuaded to adopt the simple salutary practice—the great means of cleanliness? Not speedily, it is feared; for in this, as in other things running counter to ancient customs, they will be slow and unwilling to learn. These remarks on Hygienic reform, occasioned by what was seen at Chusan, and cursorily at Ningpo, are from all that has been learned, equally applicable to other parts of the empire, at least to those of the sea coast and river sides.

On the 14th of May, the *Minden* arrived at Amoy, with a fine southerly breeze and bright sky: thermometer 80° , barometer, 29.85.

May 29th.—Since arrival here, the following circumstances, respecting the position, and its sanatory influence, have been noted.

The island of Amoy, separated from the mainland of the Fokien province by a narrow channel, is situated in latitude $24^{\circ}30'$ N., longitude 118° E. It has an irregularly winding outline, with a deep indentation of the sea running from west to east, and dividing it into two nearly equally-sized peninsulas. The longest diameters are from east to west, and from south to north nearly, being about seven miles each, including the estuary alluded to above. At least nine-tenths of the entire surface consists of a ridge of granite, precipitous and rugged, and barren as granite of such a description must be. The highest point is estimated at 800 feet above the level of the sea, but the elevation differs much at different places, and there are some deep chasms. The whole of the ridgy surface, constituting so large a portion of the island, is incapable of producing food for man or beast, and supports but in few places small quantities of stunted shrubs, which are not seen at any distance; and thus the impression of absolute sterility is, at first sight, communicated. The impression, indeed, is nearly correct. Little can be forced from the soil here, and the large population depends chiefly on the opposite fertile island of Formosa for the necessary supplies of food. But wherever there is a level bit of

land, or land that can be levelled, however small or naturally unproductive, the agricultural industry of the people makes the most of it; and by diligent culture, manuring, and abundant application of water, they procure astonishing crops of rice; by the two former abundant returns of sweet potatoes. These, and pot-herbs, are their principal products. One of the largest spaces of level land, and producing the greatest quantity of rice, is on the west side of the island, close to the beach, near the anchorage, and not far from the city. Another of considerable size is within the city, and nearly in its centre.

Opposite to the west side of Amoy, at the distance of about a quarter of a mile, at the narrowest point, is the Isle of Kulungsu, extending about a mile from south-east to north-west, and half a mile from east to west where it is broadest. Such being its limits, its extent is small. Like Amoy, it is a naked granite rock, with less elevation, but containing perhaps even a smaller proportion of cultivable surface. On the south shore, near the barrack of the 18th Regt., there are a few patches under rice, sweet potato, and indigo cultivation; and there is a similar larger space to the westward of the barracks; but the greater portion of it bids complete defiance to even the persevering labours, and alimentary exigencies of the Chinese. Close to the beach, south-east, a short distance from the barracks, there is a level of some extent, perhaps five or six acres, lying between two ridges, on one of which there is a fort, and an hospital is ereeting on the other. This level, which is directly to windward of the barracks, was formerly a rice field, but is now neglected, and from stagnant water, with the spontaneous growth and decomposition of plants, has degenerated into a swamp in the strictest sense of the word. Within the area of the barrack buildings, there is another small swampy spot, which however is in progress of being reclaimed.

Barren, and impracticable for productive purposes, however, as Kulungsu generally is, it is not destitute of interest, and even beauty of a peculiar kind. Previous to its capture and

conditional occupation by the English, it was thickly sprinkled with houses and cottages of a superior sort, capable, it is said, of containing 3,000 persons, and forming a kind of Highgate or Richmond to the opposite city of Amoy, to which the citizens resorted for the purpose of recreation, and that they might breathe a purer air, and look on more pleasing objects than the confined crowded unclean streets of the commercial town afforded. The change must have been charming as well as beneficial, for dwellings did not so press on each other as to shut out pure air and the sight of natural objects. They were always in pleasing situations, often in spots of romantic natural beauty; under cliffs, among huge fragments of rock, or in small dells, often graced by flowering shrubs, sometimes overshadowed by wide spreading trees. They are now, except those occupied by troops, untenanted unroofed, battered by shot, and falling to the ground. Yet, notwithstanding these marks of destruction, there is much to admire. From the neatness and order communicated to what remains by the officers and troops now in nearly exclusive possession; from the broken, and abruptly varying aspect of the surface, the striking forms, and what might appear fantastic grouping of the rocks, here looking like the ruins of Moorish castles, there assuming the appearance of cones, variously inclined and truncated; at one place forming saracenic arches, at another segments of walls, or being heaped together, mass on mass, in every conceivable shape—

“Craggs, knolls, and mounds confusedly hurled,
The fragments of an earlier world;”

from these, together with its bright sea girdle, view of the ocean dotted with islands, including one which takes its name from its pagoda, and is contiguous; and the obscure grandeur of the inland mountains, this island possesses the interest arising out of recent events with entire change, and is, at the same time, endued with much natural grace and beauty.

The harbour of Amoy is situated between that island and Ku-

lungsu, but there is good anchorage to the south of the latter, on the west side of the former, sufficient security, within large space, being afforded to ships by Amoy on the east, numerous small islands on the south, Kulungsu and Pagoda island on the north and north-west, and the mainland on the west and south-west aspects, at the distance of about seven miles, forming together an almost continuous chain of protection, and a capacious harbour for ships of any size.

Here, generally on the east shore, and partly close to the west side of Amoy, and south point of Kulungsu, the large and some of the small English ships of war, anchor, besides many of the native, and some foreign vessels employed in trade.

The city of Amoy stands, as has been stated, in the most westerly point of the island, opposite to Kulungsu; and considering the smallness and sterility of the island, and the unproductive nature of the contiguous mainland, contains a prodigious mass of inhabitants. The population is computed variously by different persons possessing knowledge of the subject; one account, which is the highest, rating it at 300,000. On asking a principal Mandereen, he gave it at 40,000; but the interpreter alleged that he included in his reckoning only male adults, which, when the large proportion of children and women is remembered, would bring it near the highest estimate. The Mandereen's account of the matter, however, judging from other relations in which the writer had better means of testing his knowledge, was not worth much. Here indeed, as elsewhere, the ignorance amounting to utter childishness, of the people, whatever their class, in all things not relating directly to the means of sustenance or sensuality, which absorb all their faculties and acquirements, is amazing.* The population, however,

* In proof of this, it may be stated that the said grand Mandereen, when asked, whence the snuff came, which was evidently of European manufacture, and which he was taking from a small phial with a little silver spoon, answered, from Quang-tung, in the south; but as to its being made there, or if imported, whether from Lisbon, London, or the Moon, he neither knew nor

is very large evidently, judging simply by the size of the place, and knowing the immense number squeezed into a given space in Chinese cities, as their narrow streets, small tenements, and crowds inhabiting them, show.

The original walled part of the city occupies the summit of a hill, some 200 feet above the sea; but by far the greater portion of it, perhaps eleven-twelfths, is extra-mural, and extends along adjacent levels, or up on the lower acclivities of the hill. After what has been noted respecting Tinghae, it would be tedious and irksome to give a detailed account of the form, structure, and municipal economy of Amoy. In these respects, the description of the first may be applied almost literally to the last. Multiply Tinghae by ten, and you have a distinct general idea of Amoy. There are here the same narrow streets, from eight to twelve feet wide, as there; the same wretched pavements with holes instead of gutters, or where there are any thing like open continuous drains, their contents are often stagnant, putrid, and foetid, as they are never cleaned by the hand of man, but left to the cleansing power of rain or other natural causes; and there is total want of provision for ventilating the dwellings. These attributes of a Chinese town are as inseparable from it as the stones and tiles of which it is composed. Hygieia has no place among their many diets; and of any thing pertaining to her worship they have neither knowledge nor practice. Here, however, the streets are not only much longer, but more irregularly

cared. Of the place whence the tobacco he was smoking came originally, as might be expected, he knew as little. He said that it had been brought to China a long time ago from some outlandish country, and added what was curious, if true, to the effect that its use had been resisted as strenuously by government in former ages, as that of opium has been of late; and that its culture had been forbidden, under heavy penalties, by successive dynasties. The same sage requested the writer, as others have done, to furnish him with a remedy for the opium appetite, which he appeared to think the English could cure as easily as more common maladies, but would not, to favour the sale of a profitable commodity.

disposed, being more bent and twisted, rendering them more obstructive to the circulation of air than at T'inghae; and there are some other differences between the two places which deserve notice.

Here, especially in the narrowest streets, pent houses are placed in parallel lines, from each side, near the centre, so as to leave only a few inches between them for the descent of rain and passage of air. When the extent of this systematic opposition to atmospheric change is considered in connexion with the accumulated population; with the want of the commonest means of ventilating houses, such as opposite apertures in the walls of buildings, having three or four apartments running into each other laterally, and back from the streets; with their earthen floors, and the absence of cellars, sewers, or other channels of underground purification; with stagnant gutters, and pits of putrefaction in all directions; and with atmospheric heat, varying between 80° and 90° of Fahrenheit's scale for five months of the year; it is astonishing that the place is not swept by fearful epidemics and ere long depopulated. Amoy has a species of street appendage, from which T'inghae, for the time at least, is free, namely large open jars of urine, which occupy conspicuous places along the walls at short intervals. But Amoy is not surrounded by oozy weed-covered canals like T'inghae; nor is the town much intersected by them, because the form of the ground does not permit their continuous formation; and because there is comparatively little soil that can be turned to rice cultivation. Thus the inhabitants are saved, to a considerable extent, from one source of aerial contamination, affecting those of Chusan, not willingly indeed, for as has been observed, wherever land can be got to bear rice, it is eagerly employed for that purpose.

From all that could be learned, during a short residence, through very unsatisfactory channels of information, the principal diseases affecting the natives are the same here, as at Chusan, the proportion attributable to their peculiar habits and practices being also the same apparently. Cutaneous affections, including leprosy

of the most loathsome kind, seen in the streets, and diseases of the eye, are common. They are said to suffer much from periodic fever, and dyspeptic complaints, of which their appearance gives strong proof. Occasionally, after uncertain, but generally considerable intervals, sometimes extending to fifteen years, violent epidemics break out. Whether they vary much at different eruptions, and what their exact nature at any time is, could not be well made out; but from the scanty knowledge gleaned, it is believed that they are generally some modification of remittent fever, with severe affection of the alimentary apparatus, having a choleral character, as might indeed be expected. The quality of recurring periodically, though after uncertain periods, they possess in common with the endemic epidemics of almost every other febrile region. It was remarked above as surprising that the city of Amoy, considering its internal condition, was not speedily depopulated; and it is to be regretted that there are no proper means of tracing the connexion between the condition referred to, together with that of the surrounding soil, original and artificial, and the nature and amount of disease, and resulting mortality among the citizens. It is probable, however, that the last would not be found nearly so great as might be expected, looking at every thing in and around the densely inhabited city of Amoy.

On the 5th of June, the *Minden* sailed for Hong-kong from Amoy; and on leaving the anchorage, after a stay of three weeks, some of the circumstances touching the health of the British force stationed there, and the elimatorial agency, whether essential or accidental, affecting it, deserve to be recorded briefly. Respecting them there is little doubt; none as to the quality or amount of disease, from the strict medical reports rendered periodically, and no great uncertainty perhaps surrounds the principal sources at least, from which it has arisen. The causes of disease affecting our seamen and soldiers may be considered simple, when compared with those acting on the native inhabitants; inasmuch as they are in a great measure exempted from the sources of contamination created by the unclean and economic practices of the Chi-

nese ; and are entirely free from the injurious effects of most of their personal habits alluded to, and more or less detailed in preceding pages. How far the deleterious influence of the crowded filthy town may extend beyond its own limits, and whether consequently, and in what degree, it can affect the neighbouring force, is doubtful ; there is also doubt respecting the distance in connexion with degree, to which the state of the soil may deteriorate the atmosphere, and though it excite disease among the soldiers in Kulungsu or the seamen anchored in the bay ; but personal uncleanness, except occasionally in communicating contagious disease of the surface, will not extend injury beyond its own proper subjects.

From the naval medical reports, it appears that the predominant forms of diseased action here are the same as at Chusan and in the Yang-tse-Kiang, viz., periodic fever, flux, and uleer, but that there is a greater proportion of remittent fever here than to the northward. It further appears that, although flux and ulcers were, after periodic fever, the most prevalent diseases, neither were proportionally so numerous or severe as at Chusan, and in the Yang-tse-Kiang, especially the latter ; and that while remittents were more frequent, intermittents were more rare. During the five hottest months, from April to October, the thermometrical range in the outer harbour at Amoy, is, with few and short exceptions, between 80° and 90° , being a little, but very little higher than that experienced in the north. There is, however, remarkable difference in the duration of high atmospheric heat in the two positions ; here it extends to twenty weeks at least, there to not more than ten. The comparative reduction of temperature in the winter months here is still more remarkable ; for, during the months of January, February and March, the coldest period of last year, it did not fall under 52° , which is 24 degrees higher than it was at Chusan, and makes a difference, which difference in the latitudes does not at all account for. It is probable that difference in this respect in the amount and annual distribution of atmospheric heat, and in the form and geological structure of the positions, would

if they were carefully traced, explain satisfactorily the difference which appears between the endemic diseases of the places named.

Looking at the above topographical sketch of Amoy and Kulungsu, periodic fever of some sort, however modified or disguised, should be expected; and surprise would therefore be experienced, if it did not occur in some shape, either pure and incapable of being mistaken, or so masked in its primary action, and by the structures subsequently affected, as to render it difficult in some cases, and at first sight, of identification. On the whole, considering the prevalent forms of disease, and the numbers affected by them, in such a position, the ultimate loss sustained by the ships of war was inconsiderable. A party of the 18th Regt. however suffered severely, especially the officers, towards the close of last hot season. The disease by which they were principally affected appears to have been remittent fever, but as no officer remained, who had been present during the period of its prevalence, neither its precise character, nor the proportion of attacks and deaths could be determined.

NOTE written, 27th Feb., 1844.—The last hot season proved very fatal at Amoy and Kulungsu, principally through the ravages of cholera. The naval force consisted of two brigs only, the Wolverine and Serpent; and in them the disease made comparatively little progress, chiefly, it is believed, because they moved from the place where it originated, and thereby escaped its power, leaving behind them its cause, and afterwards suffering so far only as the poison had entered the system before quitting the vicinity of the position whence it was evolved. The mortality in the small squadron, however, with this advantage, was upwards of six per cent. In the garrison, it appears, though the amount is not known to the writer, that the loss was much greater; and in the city of Amoy, it is reported that the mortality, for many weeks, was appalling.

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In the ships of war, the disease was characterised by the symptoms which mark the concentrated and rapidly fatal malignant cholera, running its course in fatal cases in a few hours. Remittent fever subsequently attacked the garrison, but scarcely affected the squadron.

SECTION VI.

Hong-kong—Weather—Remarks on the measurement of atmospheric heat—Further notes of weather—Disease—Similarity to, and difference from, that observed in the north—Remittent fever—Severity—Nature—Question as to its affinity with cholera—Illustrative case—Flux—Character compared with that of Chusan—General intractability—Resulting dropsy—Weather—Continued unhealthy condition of the island and harbour.

ARRIVED at Hong-kong, on the 7th of June, in the Minden, and found lying there the Cornwallis, Agineourt, Thalia, Childers, two steam-vessels, two surveying vessels, and a troop-ship; most of them with rather large sick lists, but few of them having many formidable eases, or at least acute disease with violent action. There was, however, a large proportion of imperfect efficiency in the force; of men, who, though not seriously ill, or even under treatment, were under the standard of health, having sickly sallow complexion, and being deficient of vigour. On arrival, there were light breezes, with heavy rain at short intervals, and disagreeable sensation of sultry closeness, though the thermometer was just above 80°, the barometer being 29.62. The Minden anchored here early last August, but proceeded northward so speedily as to prevent particular observations being made on the position, formation, and sanatory influence of the place.

August 7th. During the last seven weeks, the weather has been uniformly and oppressively hot, the thermometer ranging almost invariably between 84° and 88° , night and day, though it has risen a little higher and fallen a little lower, immediately before and after rain. This is an amount of atmospheric heat, which, when it has much continuance, seldom fails to act injuriously on health, through its own instrumentality, disturbing and perverting functional operations, independently of the more serious injury which it occasions by its action on insalubrious soil, which unfortunately is not wanting here. When the maximum heat is given at 88° , above which it seldom rose, and then only for an hour or two, by a degree or a degree and a half, it is known that the statement will not accord with other accounts of the temperature, loose reports being circulated that it has risen to 96° . In the Minden, means have been taken to note it accurately, the instrument being in complete shade, which is essential to correct information on the subject. The disposition to exaggerate which pervades so much of the human mind, with the view of exciting surprise or admiration, is in few things more conspicuous than in recording atmospheric heat, whether in respect of elevation or depression, particularly when either goes much beyond ordinary limits. This tendency the writer has had many opportunities of witnessing since arriving in China as well as previously. If a thermometer be placed in a port, on the sunny side of the ship, or under the break of the poop, and close to the deck, without an awning, which often happens, it is clear that the real temperature of the interior of the ship, and what is understood by full shade, is not obtained; for, in the first instance, though the rays of the sun may not fall directly on the bulb, they will fall so near it, as either by reflection, communication, or both, to give a degree of elevation, which is not a just measure of the general interior temperature; and in the second, the heat of the contiguous deck, which is often excessive, is communicated directly to the instrument, raising it five, six, or even ten degrees above the temperature of the centre of the main and lower decks. Similar remarks may be applied to the positions often chosen for thermometers on shore.

The barometer has, on the whole, been low, seldom rising above 29.40, and falling to 29 inches. Rain has fallen sparingly, and generally in passing showers during the night. Sheet or reflected lightning has been frequent, but there has been little thunder.

Although it is now the middle period of the southerly monsoon, when it generally blows strongest, the breezes in this harbour have hitherto been moderate; they have seldom, and only for very short periods, altogether failed, but when they have, the sensible heat has been depressing, it might be said, overwhelming, in a high degree. The direct course of the monsoon is from some point between south and west, but during its prevalence, the breezes in Hong-kong bay are, with little variation, from east or west, most frequently the former. This deflected course of the monsoon is occasioned by the high land of the island, which, running nearly east and west, is almost exactly opposed to the natural direction of the wind. The anchorage is on the north side of the island; and it is unnecessary to add that the cause which can so much obstruct the monsoon as to turn it from its direct course, at the same time, weakens its force. Still the strength of the breeze in the harbour is such as to refresh to a certain extent, and communicate the impression of healthfulness.

August 15th. During the last week, a great quantity of rain has fallen, in a nearly continued stream, by day and night, with vivid electrical corruscations, loud and almost uninterrupted peals of thunder, and occasionally heavy wind-squalls. At the same time, the barometer sunk, though it did not fall to 29 inches, as it did the week before; but its gradual descent, in connexion with the general meteorological signs, and the season of the year, was considered indicative of the approach of one of the violent storms, called Typhoons by the Chinese. That, however, did not follow, and the sky now looks settled; the barometer has risen slowly to 29.50, and there is every appearance of fine weather. For some hours before the setting in of the rain, and thunder-storm, the weather was calm, the thermometer rose to within half of a degree of 90, and the air felt suffocating, and in a certain degree irrespir-

able, but after a few hours, there was notable and most agreeable change in the measured heat and sensible atmospheric impression. The thermometer continued falling till it was once, for a few hours, as low as $79\frac{1}{2}$; it is now at 84° , but there is improvement in the sensible effect, beyond what might be expected from the instrumental indication.

August 29th. Since last entry, the weather has been comparatively temperate, the thermometer not rising above 86° , and falling twice to 80° , and rather under. The breezes have been pretty steady, and the weather, on the whole, has been fine. It rained heavily on the 26th, with strong wind, and the barometer fell to 29.36; next morning, the thermometer was as low as $79\frac{1}{2}$. This morning, there was another heavy fall of rain, when the thermometer fell to 79, the barometer being 29.70.

September 6th. The forms of diseased action hitherto observed at this anchorage are very limited in number, being, with few exceptions, reducible to two heads, namely, periodie fevers and fluxes. Thus, there is similarity between the endemic affections of the locality, and those chiefly encountered in the north last year; but there is also considerable difference. One point of difference consists in the almost entire absence of sloughing ulcer at Hong-kong, which proved so frequent, serious, and sometimes intractable a source of inefficiency at Chusan. There is a considerable number of cases at present in the Agincourt; but it is believed that the ulcers in that ship have a limited origin, and are unconnected with diffused atmospheric agency.

It was noted as a subject of some surprise in the north, considering the atmospheric heat, and excess of artificial miasmatal soil, that remittent fever should have been so rare, the fever there so constantly assuming the intermittent form, and generally, however complicated with other morbid actions, exhibiting regular and well-defined types. Here, on the contrary, there have been, during the last three months, a large proportion of remittent fever, frequently it is true, as elsewhere, when not terminating fatally, issuing in ague; but the agues have not been so formal in type as at

Chusan; and there is another well-defined point of difference between the morbid manifestations of the two places. Then, there is a striking feature of likeness between them, that, namely, of their being in both places associated with flux; for here, as there, the two forms of disease—fever and flux,—are often so intimately linked together, that it is difficult to tell which is the primary, or ought to be considered the principal affection. Perhaps, fever in a majority of instances appeared first, but the exceptions have been so numerous, fever being so often preceded by flux as to give it little claim to be considered as a prevalent, or necessary priority. Whichever appeared first, it constantly happened that as one series of morbid actions declined, the other rose. They were sometimes concomitant, but more generally appeared in rotation, whatever the order of precedence and of succession might be. This blending, or association of different diseased actions forms here, as it did at Chusan, a constant source of perplexity in devising fit methods of treatment, and interferes materially with their successful application; for what promises advantage in one is constantly injurious in the other.

The remittent fever, which is derived from particular positions to be noticed afterwards, has a severe, in some instances even a malignant character. The sensorium has been generally so much affected as to procure for the disease the name of “head fever” among the men; but the alimentary organs have also, in most instances, been deeply involved. Periodic movements have almost universally been conspicuous, remission and exacerbation being strongly marked; although there have been cases in which the subjects have not outlived the invasive congestive stage, but have sunk without the occurrence of reaction and the completion of a paroxysm.

In these cases, which fortunately have not been frequent, the most striking effects of the febrile poison have been, vertigo, producing a tottering paralytic gait, or preventing locomotion entirely, with or without violent headache, but most frequently there is little complaint of pain; drunken expression of countenance, dilated

pupils, and indifference to external objects; rapid, feeble, fluttering, often intermitting pulse; surface drenched with sweat, cold, and almost lifeless at the extremities; generally, though not universally, vomiting, sometimes purging, the ejected matters abounding in bile, at least those vomited; jactitation; thirst; white soft tongue; lividity of the lips, with dusky hue of the face, sometimes extending to the surface generally. Such has been the general aspect in the worst cases. An aspect, which, on hurried inspection, and without examining every feature, might be mistaken for that of malignant cholera, though the diagnosis, taking all the symptoms together, was clear: in most cases the anxious application of remedial means availed little for saving or even prolonging life.

But in a majority of instances, when vital prostration was less profound, vital resilience being proportionately unsubdued, matters were more manageable and progress was more satisfactory. The febrile paroxysm was commonly quotidian; and though the exacerbations were often violent, with much delirium and imperfect remissions, the disease has been, for the most part, conducted pretty steadily to cure. It has however often, more frequently than otherwise, happened, that intermittent has succeeded to the remittent type of fever; and, as stated above, when either have been arrested, gastric irritation, with flux, generally dysenteric, has set in; and that again on yielding, has been succeeded by intermittent, or, though more rarely, recurrence of remittent fever.

The sketch of symptoms given above includes, of course, only the more constant and essential; and it is right in the representation of so formidable a disease to notice others briefly, which, though less distinctive, as being common to other forms of fever, were pretty constantly present, especially in the more protracted cases. There was more or less of epigastric tenderness, sometimes with fulness and impatience of pressure, though the patient seldom complained of either, till interrogated or handled; and, there was occasionally thoracic pain, with obstructed respiration, bronchial cough and expectoration. After numerous paroxysms,

generally towards the marked decline of febrile action, the surface, commencing with the eyes, generally became icteric, the hue being a uniform bright yellow, and consequently having little resemblance to the dusky orange-coloured, margined and mottled with purple, so common in West Indian fever. Sometimes, though not generally, there was hypogastric pain, with dysury; and rarely, more rarely than in fever generally, pain of the loins, extending to the extremities. Convulsion occurred in some instances, and denoted great danger, though not always a fatal issue; and subsultus was common towards the close of life. The eyes, except in the worst and most precipitious cases, were generally bloodshot; sometimes, when thus injected, they were abnormally dull, at others morbidly sharp. This condition of the eye, though unfavourable, was not universally so in a high degree. It was otherwise with another state of the organ, not easy to describe intelligibly, but of which some idea may be obtained from the following words. The pupil was not manifestly affected in dimension, but had a turbid appearance, while the cornea exhibited a variegated surface, from many depressed, non-transparent points, as if ulcerated. This did not occur frequently, but, when it did, was the sure precursor of death. The patients, in such cases, took little notice of surrounding objects; but it did not appear that vision was materially affected.

In one respect, there is much resemblance between this fever and the proper endemic of the West Indies, namely, the apparent want of consent between the real force of the affection and its external, appreciable manifestation. Here, as there, when there is no complaint made or admitted, and while there is no violence in the febrile signs, it not unfrequently happens that the subject is suddenly seized with hurried respiration, fluttering pulse, partial unconsciousness, or slight coma—a condition which speedily terminates in death. But while there is this point of agreement, there are many points of difference between the two forms of fever. It would be tedious to go over the whole, which, taken together, form a distinct line of diagnosis; but one may be noted in pass-

ing. In West Indian fever, death generally ensues, or convalescence is fairly established in a few days; for the most part, within a week; and when established, it proceeds steadily in most cases, speedily to completion. Relapse is remarkably rare; and the subject, in a short time, is as well, strong, and little liable to disease, as he was before the attack. In the Hong-Kong fever, on the contrary, when it is subdued, its duration being very uncertain, intermittent fever, or flux, as already stated, constantly sets in. There is great proneness to relapse; and, after the disease has been apparently subdued, and the tendency to recurrence overcome, the subject continues long listless and emaciated, has a sallow countenance, with pale lips, and hovers on the verge of jaundice, dropsy, or fatal flux. In enumerating the most prominent symptoms of the recent cases, it was stated that the patient sometimes sunk before the completion of one period of the fever, a statement equivalent to saying that death occurred within twenty-four hours; and this in strong muscular men, who had been in perfect health a few hours before. It seldom happens that disease assumes a more formidable aspect than this.

Post-mortem examination, which was instituted in all fatal cases, revealed little; nothing which appeared physiologically illustrative, or pathologically instructive. It may be that the apparent obscurity arose from defective observation, but it is certain, with the discriminative power possessed, in endeavouring to connect satisfactorily the destructive action during life with the organic condition after death, and with dissolution, that the attempt was the reverse of successful, scarce anything being recognised to explain the mysterious agency by which the former produced the latter; nor was there deduced from the autopsies, information by which better-founded and more successful methods of treatment might be adopted in future. Without going into much detail, which would be generally uninteresting, it is right to note, in a comprehensive way, the appearances which were most constant and striking.

In the worst, suddenly fatal cases, nothing was detected, ex-

cepting a loaded state of the large venous trunks, and a certain degree of venous congestion of dependent parts in the thorax and abdomen. The brain and its investing membranes were more exsanguined, and consequently paler than in normal condition, there being no serous effusion either under the meninges, or into the ventricles. Neither here, nor in other parts, was there anything which, with the utmost latitude of language, would be considered inflammatory, or having the least approach to it. The vascular condition of tissues was, indeed, the very reverse of that which constitutes inflammation.

When the disease was more protracted, became distinctly paroxysmal, and did not terminate in death for some days—from five to fifteen—the organic appearances observed on dissection, had a similar pervading character, but were, to a certain extent, modified, with additions. What could be ascertained of abnormal in structure, was in these, as in the former, with little exception, congestive, not inflammatory, especially manifested in the lungs. In two cases, there were inflammatory patches at the great curvature of the stomach, and in two others, similar patches on the dura mater—conditions which there is reason to think, from the previous symptoms, arose shortly before death. In three instances, of considerable duration, the cortical portion of the brain had a peculiar, uniform, dark-colour, approaching that of worn mahogany; but there was neither abnormal softening, nor induration, that could be traced; nor was there more, there was perhaps less, than the usual quantity of effused fluid. When fever had followed flux, which was not uncommon, ulceration was occasionally found in the colon, the result evidently of the preceding affection. The integrity of organs, including the liver and spleen, when the violence of paroxysms in many cases is considered, is surprising.

Neither the morbid phenomena, nor the post-mortem appearances, in these cases, gave any support to the theory of localism, or the doctrine which teaches that there is no such disease as essential fever; that universally it is a symptomatic, not idiopathic affection; and that, however difficult to distinguish, and however

frequently therefore overlooked it may be, inflammation of an organ, chiefly of some part of the encephalon, or alimentary apparatus, is in every instance present; and that, not as a part, concomitant, or result, but as constituting the essence of the disease, and the cause of all consequent symptoms. The preceding sketch of appearances, during the disease, and after death, leads to another conclusion. It shows that the fever was primarily and emphatically a disease of the whole system, though it might not affect every part of it equally at the same instant. Its power was especially manifested in the sensorial and vascular tissues, through which secretion was perverted or suspended, excretion was arrested or rendered inordinate, and motive power was paralysed. The pestilential miasm acted, in many respects, like a concentrated narcotic poison. It struck suddenly at the source of vitality, if so vague an expression of an obscure condition may be employed, producing so much prostration of the organic force, and consequently of their necessary operations, as, in some cases, to destroy life speedily; and, as has been remarked, when the fatal course was very speedy, and there was no true reaction, the process by which life was extinguished left scarce a trace behind it.

In some of these cases, it has been observed that the disease, on a cursory view, might have been mistaken for the worst modification of cholera. This general likeness has suggested a question—not a new one—as to the affinity between miasmatic fever and malignant cholera, and whether the cause of the two affections is essentially the same. In connexion with the subject, a case of cholera is shortly introduced, which occurred singly, at a time when periodic fever and fluxes were prevalent, both on the island and in the harbour of Hong-Kong.

The subject, George Tardy, private of the 56th regiment, was received into the hospital of the Minden, on the 12th of August, after having been six weeks in the hospital of his corps, suffering from flux, complicated with periodic fever. On admission, the following note was made of symptoms:—"Vespere. Much attenuated and debilitated, from remittent fever, superinduced on acute

dysentery; pulse 84, feeble; tongue morbidly red; no stool from four P.M." From this date till the 22nd, there was general improvement, and appearance even of convalescence, when diarrhœa set in, soon after midnight. The purging excited little attention, and no alarm, till eleven A.M., when vomiting supervened, soon after which, all the unequivocal symptoms of malignant cholera manifested themselves, viz., continual tossing, and inexpressible distress; partial cold sweats, lividity of surface, goose-like appearance of the hands, alternate fluttering and imperceptible pulse, spasms of extremities, insatiable thirst, moist cold tongue, cold breath, total suppression of urine, with frequent vomiting and purging of the true choleral fluid, closely resembling thin water gruel. These symptoms, which were scarcely influenced by treatment, consisting chiefly in the internal use of turpentine, administered both by mouth and rectum; its external application diligently and constantly, with strong friction, and saline effervescing draughts, with tincture of opium, terminated fatally in twelve hours.

The post-mortem appearances noted six hours after death, corresponded generally with those observed in other cases of the disease. There was venous engorgement of the membranes, and undue vascularity of the substance of the brain, but no effusion into any of the ventricles. The lungs were loaded with dark-coloured blood, and the heart and contiguous large blood-vessels contained blood of the same colour, without coagula. The lining membrane of the stomach and intestines was pale and exsanguined, and destitute of bilious tinge, as were the contents, which consisted of white, mucus-like fluid, without a trace of feculence. The gall-bladder was distended by dark green bile, and the urinary bladder was contracted into a small ball, about the size of a walnut, containing, of course, no fluid. There was some injection in the cortical substance of the kidneys. The liver, spleen, and pancreas, presented no unusual appearance. There were ulcers in the mucous membrane of the intestines; and near the termination of the rectum, there was a cicatrice, nearly half an inch in diame-

ter. These last appearances were of considerable duration, and had no direct, or, at any rate, no evident connexion with the last fatal affection.

This was the only case of cholera which occurred in hospital before or since, now a month ago. The subject was weakened by previous disease, and there had been progressive ulceration in the mucous surface of the intestines. It has just been alleged that this state, general and local, had no evident connexion with the cholera; but, though not evident, there may have been the connexion of augmented disposition to cholera, communicated by the condition in question; and there can be no doubt that that condition rendered the application of remedial means more difficult, and the issue more hopeless. Cholera succeeded remittent fever, which had succeeded dysentery. In former notes, the relation between flux and periodic fever has more than once been adverted to: may not cholera be added to the family, and included legitimately in the same category? Whether in this case the cause of cholera was received on shore, lay so long latent in the system without producing choleral effects, and gave rise, without addition, and under certain unknown modifications, to the preceding flux and fever; or whether, from peculiar constitutional and acquired peculiarity, he alone was affected by it subsequently, are questions which cannot be answered. But it seems reasonable to conclude, in the terms in which the question was put, that the cause is essentially the same; and, therefore, that in the most fatal and precipitous cases of fever, where the general likeness of the disease to cholera was noticed, had the cause been more concentrated, or, perhaps, slightly modified, without increase of force, instead of it, there would have been cholera in the ordinary acceptation of the term. Such concentration or modification might have occasioned arrestation of bile, either secreted or discharged, suspension of renal action, peculiar perversion, and enormous increase of cuticular, gastric, and intestinal secretion, and the entire condition constituting cholera. Susceptibility, natural or acquired, permanent or occasional, acts a most important part in such cases, of

which, however, little is known, except from its effects ; and ignorance in this respect forms a great barrier in the way of real medical knowledge, especially in its application to endemic disease, whether occurring rarely, or prevailing extensively.

Respecting the flux which has prevailed, and still prevails, at Hong-Kong, there is not much to be added to the account given of that which was encountered at Chusan. In general character, varieties, modifications, and intractability, there is very close resemblance. Here there is rather a larger proportion of comparatively recent cases, though it is very small, and, by so much, there has been a somewhat larger amount of successful treatment. When, however, the whole number of recent and protracted cases are taken together, the last so greatly preponderate, and so constantly resist all curative attempts, that the result is the reverse of flattering. But while there is general likeness, there are some well-marked points of difference in the disease of the two localities.

Here, contrary to what happened at Chusan, there is frequently, towards the close of fatal cases, supervention of secondary acute inflammation, with vomiting, and abdominal pain and tension. Singultus is also common in this state, and the dejections occasionally contain a portion of pure blood, but more frequently consist of liquid, homogeneous, brown-coloured matter, the brown colour depending on effused blood.

The post-mortem appearances in such cases differ materially from those constantly observed at Chusan, but arise with the latter phenomena of the disease. Vascular patches, occasionally diffused inflammation, tending rapidly to disorganization, often appear in the stomach ; similar appearances are found in the small intestines, where ulcerated spots have besides been detected. The numerous autopsies which have taken place show that the primary and permanent source of the intestinal symptoms has been in the large, lower portion of the tube ; but it is not, as was almost universally the case at Chusan, confined, in a great degree, to the ileo-cæcal valve, the cæcal portion of the colon, and rectum. On the contrary, the transverse and descending portion of the

colon, as well as the rectum, are deeply involved; being livid, thickened, indurated at one point, softened at another, abraded, and ulcerated, ulceration occurring in small section-like points, or deep excavations, often penetrating to, occasionally through, the peritoneal membrane, which is generally tumid, from serous infiltration. The rectum is hypertrophied, and ulcerated in an especial degree; and, in some instances, there is a great amount of vascular turgidity, and irregular thickening of a mulberry appearance, on the mucous surface, from which, and through the ulcerous openings, the unmixed blood, and brown-coloured homogeneous dejections, which occurred soon before death occasionally, were supplied.

Here, as in the north, the slight structural injury sustained by other abdominal organs, including the liver and spleen, is remarkable. It very seldom happens that any alteration from normal formation can be detected. Size varied considerably in different cases certainly; but while the standard of healthy magnitude, in relation to bulk of other parts of the body, and of the body itself, is undetermined, so long as nothing abnormal in minute structure can be traced, it is concluded that difference in quantity, not being excessive, does not constitute disease.

Here, as happened at Chusan, and as will happen everywhere in similar states of disease, dropsical effusion is common. It is almost always general, appearing first in the lower extremities, then in the abdomen, and frequently extending to the surface generally; it is occasionally universal, occupying every part of the cellular tissue, and, in greater or less degree, every cavity of the body. It is consequently, and in accordance with the statement given above of the general organic integrity witnessed after death, the result of debility, and a condition of the capillary function, subversive of just balance between secreting and absorbing action. It has seldom any connexion with mechanical obstruction. In a single case only, thus originating, was paracentesis abdominis once performed; and in that it was not urgently called for, the tension depending as much on tympanitis as dropsy. In most cases, it subsides remarkably, or entirely disappears, before death, and seldom

appears to contribute materially to the issue. It is even more signally than usual a simple product of organic and vital exhaustion, and, though a conspicuous, not a very important one. When, however, dropsy, general or universal, is added to the other effects and phenomena of the devastating power of malarious poison, it renders the condition of the patient more strikingly hopeless. The remark contains a truism requiring no comment; nor would it be interesting to detail the various therapeutical means, having especial reference to the dropsical state, in such cases, as they constantly failed in their object; yet in some, which had every appearance of being desperate, after many disappointed expectations, repeated relapses, and, for a time, utterly hopeless intervals, cure was ultimately, after a long time, effected.

September 27th.—The first week, after the last date, was hot and oppressive, the thermometer rising to 88° , with light westerly winds, lightning at night, and threatening of thunder-storm, which, however, did not take place. Notwithstanding the atmospheric aspect, and the impression of great aerial rarefaction, the barometer did not fall below 30 inches. Since that time, rain fell pretty copiously on different days, and the wind, which had been southerly, veered to the east, with various points of nothing. The change, following the rain and shift of wind, has been most grateful, more so than the fall of the thermometer fully accounts for, though that has been considerable; it was once as low as 80° in the morning, and has not been above 85° in the day. The sky is now cloudless and clear, with a moderate breeze from east-north-east; the thermometer standing at 83° , and the barometer at 29.28. These atmospheric indications, coupled with the season of the year, which is better authority, show that the southernly monsoon is nearly exhausted, and that it will soon be succeeded by the northerly; though there must be an interval of uncertainty in the wind, and of conflict between the two great currents. The establishment of the northern is eagerly expected, both on account of its sensible and sanatory influence, more especially the last.

In the mean time, the harbour of Hong-Kong, and the adjacent

shores, continue unhealthy. Sickness increases rather than declines, and there is no improvement in its character. Most of the ships at anchor have large sick lists, some of the regiments on shore much larger. From both sources, this hospital is full, and contains an immense proportion of bad, a large proportion of utterly hopeless cases. During the last three weeks, there have been comparatively few new cases of fever in the naval force, but many of relapse, and more running into flux just as fever was subdued, and as convalescence was hoped for. This condition is especially dreaded, because all experience on these shores shows its indomitable character in most cases. The coming change of weather may be expected ere long to arrest the course of fever, and thereby to render the flux associated with it comparatively rare, and more manageable when it occurs. But there are many men, a large proportion of all affected with the latter form of disease, so deeply impregnated by the poison, so much organically injured, and prostrated by its wasting effects, as to place them beyond the healing power of atmospheric agency, or agency of any kind, short of miracle. This sad and unsatisfactory subject has been more than once introduced in these notes, ample admission being made, at the same time, of the general inefficiency of the therapeutic means employed; yet it may again be allowed briefly, to notice the melancholy medical duties arising out of it, in terms of vexation and disappointment. The chief consolatory reflection left is, that nothing has been omitted or negligently applied, which, with the means possessed, whether intellectual or material, and both stretched to the uttermost, could be devised and administered. But it has very frequently happened to the writer, and those working with him, to find all the resources of their art employed in vain, or with temporary advantage only; to go the same disheartening round, from bed to bed, hour after hour, seeing the sick men, who looked to them for relief, sinking slowly, but surely, in the chronic cases under consideration; sometimes rallying for a short while so much, that they, and even their attendants, have been flattered with the hope of ultimate recovery,

but soon retrograding, in a majority of instances, to a worse state than that from which they seemed to be recovering; till, after weeks, months, or more than a year, when reduced to a condition that seemed incompatible with life, and with an aspect absolutely spectral, the mind remaining entire, their long-enduring sufferings have been terminated by death. In such a state of things, which unhappily continues, it may be conceived that change, and the change of weather which is expected to effect it, is most anxiously looked for and desired.

SECTION VII.

Territorial insignificance, and State importance of Hong-Kong—Position and form—Geological structure—Soil, and general condition of surface—Cause of prevalent forms of endemic disease—Predominance of remittent over intermittent fever, as compared with Chusan—Question as to the cause of difference.—Weather—Fall of atmospheric temperature—Reduction of disease—Further fall of temperature—Position becomes perfectly healthy—General statistics of the mortality of last season—Reasons why seasons of such sickness should not recur frequently—Proposed means for increasing the salubrity of the island, and anchorage—Small-pox—Its origin—Neuralgic erythema—Weather—Exanthematous disease, not variolous—Its origin—Simple elevation of temperature, with abundant moisture, not injurious to health.

OCTOBER 9th.—Hong-Kong, a small, barren, and naturally insignificant spot in the ocean, has acquired notoriety from recent occurrences, will continue interesting from passing transactions, and must become important, by events, which, however difficult to foretel, as to order of succession and of time, and however disappointing expectation in some respects, will assuredly follow. It is now an integral part of the British dominions, and though the last and least of her territorial acquisitions, is such a one as

has long been an object of desire to her merchants. It, with the opening of the northern ports, and the resulting advantages, was obtained by an inconsiderable force, against which the military power and strategic skill of an empire boasting a population of 360 millions of souls, and conceiving themselves superior to all others in arms, as well as in arts, were marshalled. The expeditionary force which last year operated in the Yang tse-Kiang, and its neighbourhood, not only conquered China without difficulty, but also proved, at the same time, how vulnerable she is in her vital parts, and observed the best means and points through which, should it be necessary, she might afterwards be attacked. The expedition was certainly well planned, excellently equipped, and conducted throughout with great judgment, perseverance, and promptitude; yet it was so small, such a mere handful, in relation to the hosts it was sent against, that its speedy and complete success was matter of surprise, as well as of gratitude and patriotic elation.

Hong-Kong, which a few years ago was a naked rock, possessed by a few half-starved fishermen, serfs, and robbers, already abounds with British merchandise, and proofs of industry and enterprize. Streets, store houses, shops, and villas, are springing up in all directions. Its harbour is crowded with merchant ships. New colonists are continually arriving; and its population and business increase at a prodigious rate. These are palpable advantages, in a commercial point of view, and through that channel will confer mutual benefits on the dealers; but what may the British possession of this island ultimately effect in dissipating the moral and intellectual darkness of the Chinese, and pouring the light of truth on its people? Already, Christian missionaries of many denominations, but all teaching one great truth, have arrived, and begun their benevolent labours. They will consider Hong-Kong their head-quarters, and safe resting-place, where, however the heathen may rage without, they cannot molest them. Schools have been established for educating Chinese youth, and chapels been built for further and higher instruction. Printing-

presses are at work, multiplying the means of increasing knowledge, and inculcating wisdom ; and everything, in the instruments employed, promises well. Such is the prospect, and such are the first steps in the grand, laborious undertaking. From this spot, scientific information also must, however slowly at first, find its way into the Chinese mind ; and hence directly, as from their chief and abiding fountain, light and living principles will flow into the vast adjoining empire of darkness and idolatry, till its multitudes of people shall be thoroughly instructed, and radically reformed, emancipated, and evangelised. This may be safely predicated, without indulging in dreams of enthusiasm, or treading the dangerous path of prophecy.*

The diminutive colony of Hong-Kong, where so many hopes and expectations are centred, is situated at the mouth of the great estuary of Canton, eighty miles below the city, close to the left bank, being separated from the continent, at one point, by less than half a mile. Its geographical position is in 22 N. latitude, 114 E. longitude. Its largest diameter, which runs nearly east and west, is nine miles ; the breadth, from south to north, is five-and-a-half miles. In shape it is very irregular, having numerous bays, and some deep indentations, with long projecting peninsular points, which render the space comprehended by the above short lines less than the measurements indicate ; and from the precipitous form of the hills, independent of inherent sterility, it affords little scope for agricultural industry. It is one of a multitude of islands by which the coast of China is guarded, and which, among other natural advantages, raise her above any other equal division of the world, in the number, extent, and security of her harbours ; and that, or rather those, of Hong-Kong, are inferior to none of them.

The principal is on the north side of the island, facing the rising capital of Victoria. Here, without tracing it east to Tam-too, or west to Lantao, which would give a length of fourteen miles, there is a compact haven, about three miles square, which cannot be surpassed in the qualities which constitute a perfect

* In connexion with this subject, see note at the end of the section.

anchorage. It is formed by Hong-Kong to the south, by that and the mainland, the former bending on the latter, to the east, by the continent on the north, and by the island of Lantau to the west. By these it is not only, in nautical phrase, land-locked, but strongly guarded by the height of the surrounding land, which rises to 3,000, and scarcely falls below 1,000 feet; so that, when it blows strongly outside, there is little disturbance of its surface. It is easy of access by an eastern and western passage, but the latter, being the more capacious, is most frequented. These opposite openings contribute to the ventilation and cooling of the bay, and contiguous town, which otherwise, during the southerly monsoon, would be much, and by so much, more intolerably hot than they are.

Considered geologically, Hong-Kong may be said, in general terms, to consist of a mass of granite, as there are few and inconsiderable portions of other rocks, either incumbent, or, as far as can be observed, interspersed; and the amount of resulting soil is remarkably small. Gneiss, quartz rock, sienite, sandstone, and compact felspar, occur in some of the lower acclivities and levels; porphyry and basalt are said to exist, but they have not been seen by the writer. The granitic formation has a twisted ridge form, from east to west; but the line is broken by deep chasms and rising points of many shapes. Towards the base, the granite is, in many places, in a state of disintegration, more or less complete, but is mostly of a firm and enduring structure, as its crested points, precipitous faces, and want of soil, testify. When not nearly perpendicular, as it is in many places, it is generally in lateral ridges, running at right angles nearly from the great central ridge, and terminating in spurs, near the sea, which, as they recede from each other, leave little valleys, bounded by the beach, and forming the sole small cultivable portions of the island. The geological composition of the continent opposite, as far as it has been observed, is similar to that of the island.

Victoria, the seat of government and of commerce, stands close to the base of nearly the highest, if not the highest point of the

ridge, on the north side ; and so close is the base of the mountain to the beach, that it is necessary to make a long winding street in the direction of its sinuosities, and to erect the greater portion of the buildings on heights and practicable slopes. Such slopes, however, do not extend far from the sea. At a short distance, the rock rises abruptly, at some points almost vertically, to an elevation of near 1,800 feet. This proximity of base to the beach is common to the island, the small cultivable portions of surface being embraced by the receding mountain spurs noticed above. The soil in these narrow vallies and ravines, and on the lower slopes, is a dense ferruginous clay, naturally so sterile, notwithstanding the favouring influence of heat and moisture, as to produce nothing but stunted firs and palmettos, dwarf laurels, caetuses rarely, ferns, coarse grasses, and a few fruit trees, especially the leiche, which is a beautiful plant, and, considering the soil, as well as the languishing appearance of other plants, grows with a vigour, and acquires a size, which is surprising.

Yet even here persevering industry has contrived to force something from the inhospitable soil. In the levels, and on practicable slopes, they cultivated rice to the limit of possibility. For that purpose, abundance of water is necessary here, as elsewhere : here, consequently, as elsewhere, they formed terraces on the sides of the hills and ravines, and thus reduced steep acclivities to level surfaces, that they might retain the large quantity of water essential to the plant. In this way, they made a multitude of minute flats, rising, like steps, one above the other, from the central valley, to the nature of which, by artificial form, application of manure and water, they become assimilated, and were made available to the same end. Since our occupation of the island, however, the rice plats, whether on these terraces or the natural hollows, have been in many places neglected, and have fallen out of cultivation, remaining in a state similar to that which was observed on the south side of Kulungsu.

Rice grounds, when under a regular course of culture, as has already been stated, have some of the more striking features of

marsh land; when neglected, as they now are to some extent, both at Hong-Kong and at Kulungsu, they exhibit them all. In the former condition, the soil is at one time under water, and, at another dry, with intermediate transition stages; but the water is applied at regular periods; and the vegetable products are prevented, by every means, from decomposition, and are carefully cut and carried from the surface. In the latter state, on the contrary, rain, and water flowing from higher land, fall on the soil irregularly, to flow off slowly, and in small, if any quantity, from want of descent, by accidental outlets, or to stagnate till removed by evaporation; seldom, if ever, covering the surface completely, but keeping it constantly saturated with moisture during rainy weather, while the plants, which spring up spontaneously, having no value, perish, and decompose where they grew. The exhalations from these deserted rice-grounds, more than from the cultivated fields, and from naturally swampy spots in the ravines, as well as from brushwood growing and rotting there, are believed by the writer to be the principal causes of the endemic diseases of Hong-Kong and of its harbour.

This belief is founded on evidence which appears sufficient, especially on that of two co-existent and coherent facts. The expression of the first fact is this, that the diseases in question, remittent fever, frequently terminating in intermittent, and intermittent appearing as a primary affection, one or other of which passes into intestinal flux, or alternates with it, are, by the universal consent of observers in all ages, the direct consequence of the miasmata—the subtle and hitherto, in its nature, undetermined product—of marsh and marsh-like soils. And the second fact, so closely linked with the first, is generally expressed by the amount of marshy surface, resulting from the breaking up of rice grounds, and other sources, given in the preceding paragraph.

Other causes have been assigned or suggested here, such as insulation, intemperance, fatigue, insufficient protection by barracks, and the majority of other habitations, which generally stand on, or close to, the damp earth, and are, at the same time, so

badly roofed, as to guard very imperfectly against heat, as well as cold; and it is readily admitted that these, singly or collectively, may, and do, in various degrees, contribute to the frequency, and severity, and consequent mortality, of disease. But it is not believed that they can of themselves, and apart from paludal miasms, cause fever of purely periodic type. They are not necessary, but contingent powers in the morbid act; they are circumstantial agents of varying power, but cannot, in any degree of accumulation and force, supply the place of the essential cause—*causa sine qua non est*.

It has been alleged, and appears to have obtained some credence, that the cause of fever at Hong Kong consists in something connected with, and arising from, the disintegration of its granitic structure. If there were not enough of acknowledged agency apparent on the surface, to account for the whole effect, there might be more reason than appears for starting a new conjecture, and opening a fresh field of controversy, respecting the origin of fever. Besides, the process of disintegration is not more rapid and extensive than—nay, it is not so much so as—in other places, where there are no similar results. Another objection to this hypothesis may be taken from comparing Hong-Kong with Kulungsu. In the latter island, the granite is of a remarkably dense and indestructible nature, appearing to have undergone neither decay—nothing in the shape of disintegration—nor change of any kind, for ages; yet, during the time it has been occupied, it has been severely affected by disease in the hot season. The precise loss is not known to the writer, but he believes that the public force there has suffered as much from periodic fever as at Hong-Kong—more, indeed, if cholera be added to disease designated fever.

It has also been alleged that the cause of the endemic is some exhalation from recently turned-up soil; but for this allegation there appears the slightest possible foundation. In Egypt, America, and the West Indies, where there are rich alluvial plains, abounding in vegetable mould, and where decomposition is still

going on, it is probable that disturbing the earth, and exposing an inferior stratum, especially of virgin earth, to the atmosphere, may, as mentioned by Volney, Rush, Bancroft and others, give rise to endemic fevers, or, at least, contribute to them. But nothing at Hong-Kong in the least resembles the surface in those places. Here there are no extensive plains, covered with alluvial mould, and teeming with vegetable matter. Little cultivation of the soil was ever attempted, for the reasons assigned above; nothing additional has been done of late; on the contrary, ground which had been cultivated has been neglected. The surface has been touched only to form houses, and to make a short line of road; and the soil which has thus been turned up contains the smallest conceivable quantity of the elements of decomposition, consisting, as it does, principally of silex, with varying small portions of felspar, mica, and oxyde of iron. Beyond this, nothing has been done to form a new surface, while a portion of that formerly cultivated has fallen into a waste condition; and thus the state of things here, in these respects, is the reverse of that which was detailed and dwelt on by Bancroft and Rush.

The places in which the endemic chiefly originated, and the manner of its progression, lead to the conclusion that it has an ordinary miasmatal origin. Fever, with flux, first appeared in force this year, as well as the last, in a locality called West-point, where there are barracks, and a naval store, about half a mile west of the town. The barracks occupy a narrow ridge, running from south to north, and terminating at the beach, about 120 feet above its level. Right and left of this ridge, being in the course of the summer breezes, are hollow and shelving spaces, with deserted rice plats resulting in marsh, naturally swampy hollow spots, and decomposing brushwood, which ascend close to the barrack buildings, especially on the east side. Near this spot, touching the sea, and just above its level, is the naval store alluded to above. It stands immediately under the barracks, on the north-east, and has the swampy ground eastward of them directly in its rear, at a few yards distance.

Last year, the 26th regiment, while quartered in these barracks, suffered severely from fever and flux; and this season, a wing of the 55th regiment has been rendered almost entirely unserviceable by the same forms of disease, for the time, and must continue so to a very great extent. Its exact proportionate loss, in a given time, is not at present known to the writer; but he believes he may aver that at least one half of the whole force has been, or ultimately will, be lost by death, and invaliding. Some weeks ago, the mortality became so appalling, and the sickness so universal, that the quarter was abandoned, at least for the season, the remainder of the troops being embarked in ships at anchor in the bay.

For some months of the hottest season, there was a marine guard at the naval store, furnished by the Cornwallis and Agincourt, chiefly by the former ship. Nearly every man so employed was affected by remittent fever, generally associated with, or terminating in flux, and almost always in a severe form. The resulting mortality was considerable as a whole, though it was small in the Agincourt directly, and as the consequence of fever, principally because her marines were not so long on the duty, and partly, perhaps, because she soon after quitted the anchorage, for a cruise.

It was to be expected that the ratio of mortality would be lower in the marine guard than in the wing of the 55th; as the former, being frequently relieved, resided on the febrific ground, during periods only, while the latter were there constantly. Position also was in favour of the marines, their quarter being rather under the level of the miasmatic soil, while the barrack is above, but not much above it, being perhaps at the most pernicious point of elevation which could be found; the acclivity preventing the dispersion of the poison till it reach its summit, where, in undiluted strength it is poured upon the residents. Considering these things, waving all consideration of insufficient and badly built barracks, and remembering, as stated above, that the summer winds, whether east or west, blow directly over the marshy surface, across the cantonment, it would be difficult to imagine a worse choice than this;

if the malarious soil be allowed to remain, as hitherto, disfiguring and poisoning the position. There are other similar pieces of surface in the neighbourhood, and swampy ravines, nearer the town, which, no doubt, as the season advances, contribute to the general contamination of the atmosphere,

East of the town, and close to it, there are swampy ravines, one of which all but touches the Ordnance barracks, where there has been a great amount of disease, death, and invaliding; and about half a mile beyond, there is a piece of neglected rice ground at the bottom of a deep ravine, which has degenerated into a state of complete marsh. Further east, at the distance of from a mile to a mile and a half from the town, there is a greater extent of level land, with the usual terraced levels on the adjacent acclivities. The space, which is broken into various portions by interspersed ridges and heights, and may extend to fifty acres, is principally under rice cultivation, but is partly in the broken swampy state existing round west point. Europeans, who resided on some of the neighbouring slopes and heights, suffered severely during the season; and the resulting mortality in relation to the number of residents has been excessively high. One spot, and that which was best tested, proved fatal in an extraordinary degree. It is a low narrow gorge, where a line of six cottages were lately built with high land on either side; and close to one extremity of the range, there is cultivated rice-ground, while there are deserted spaces at the other. From the height of the land forming the gorge, the wind is diverted from its natural course, follows the hollow, and thus blows over the rice land, cultivated or waste, to the cottages. Last season five English gentlemen went to reside there; in a short time, four of the number died from fever, the fifth scarcely escaped with life; and the lodging, not without reason certainly, has been abandoned. A detachment of the 98th regt. quartered on an adjacent height, has also suffered severely, the mortality, within the last six months, amounting to 25 per cent. Thus every thing concurs to show the poisonous nature of the exhalations from such surfaces, and their necessary connexion with

the endemic disease of Hong-Kong, and the manner of its progress leads to the same conclusion.

Early in the hot season while fever and flux were ravaging the localities, west and east of the town, persons resident in it remained comparatively healthy; and it is to be noted that there is scarce any swampy soil in the town, or nearer than the places indicated above. Later in the season, however, disease of the same character, but with less violence, invaded the citizens; and it is especially worthy of record that those inhabiting the most central part of the town, and furthest removed from the miasmatal spaces, flanking it east and west, suffered the least.

About the time that the town was affected, disease also appeared in the ships anchored in the bay, of the same general character, and evidently of the same origin, but somewhat modified,—flux bearing a greater proportion to fever,—and though often singularly intractable and dangerous, not, on the whole, endowed with so much fatal force as ashore.

Do not all the circumstances cited above point directly and unequivocally to the miasmatal origin of the prevailing disease? They first manifest themselves in the immediate neighbourhood of places abounding in the palpable sources of such emanations; and there they are not only sooner developed, but are more universal and fatal than elsewhere. As the season advances, and, as it may be assumed, the miasmata are more abundantly evolved, and widely diffused, places at a distance, greater or less, become affected in various degrees, and with certain modifications. Thus, the town of Victoria, situated on an intermediate space between the marshy grounds east and west of it, and in the direct course of the prevalent winds, secondarily in regard of time, as well as of force, falls under their baleful influence. Thus also, the ships anchored in the bay suffer at a later period from flux and fever, they being at nearly the same distance from swampy soil, but not in the course of winds blowing directly over such soil, and having a space of unquestionable salubrity, in the shape of salt water interposed. Many of the ships, however, lie on the west shore of the Kon-

lung peninsula, on the main, and so near it as to render it probable that they may be affected by winds blowing over miasmatal soil there.

The rarity of remittent fever at Chusan, in the Yang-tse-Kiang and the neighbourhood, considering the frequency of intermittents, elevation of atmospheric heat, and other circumstances, has more than once been alluded to, as a subject of surprise. Here, and at Kulungsu, on the other hand, violent remittents have borne a rather large proportion to intermittents this year, as well as the last. On examining the topographical and general atmospheric condition of the localities in question, the most remarkable difference, independent of geological structure, consists in the relative condition of the rice-ground, and the longer duration of high heat in the more southerly position, namely, here and at Kulungsu.

To the north, at Chusan, on the border of the Yang-tse-Kiang and other places visited, rice continues, as formerly, to be diligently cultivated, cut, and carried; while at Kulungsu and Hong-Kong, a considerable portion of the ground has been unworked, and has fallen into the swampy state noticed before. On this difference in the soil, independently of difference in the duration of hot weather, may not the difference in morbid agency depend? For, though excessive heat does not last so long in the north as in the south, it has sufficient duration, looking at other parts of the world, to evolve the cause of the most concentrated form of periodic fever. May it not therefore be inferred that the exhalations from cultivated rice-ground, saturated, or covered with water, at times, but under a regular process of management, and yielding the healthy products of vegetable growth, give rise to intermittent, while the stronger poison exhaled from marsh land, through processes of rapid and multiplied destruction of vegetable matter, under equal degrees of heat, and other apparent circumstances, occasion the more concentrated and fatal remittent fever? The writer would answer affirmatively, but he admits that the evidence which he has the means of offering, may not be sufficient to satisfy others

that his conclusion is correct, especially those who have already arrived at a different one.

Nothing, it may be alleged, is yet known of the essential nature of the agency generated in marshy soils, which causes periodic fever and other associated periodic affections; and little is known of the modifying or correcting influence, which, in one place, renders such soil pestilential, in another comparatively, if not absolutely innocuous, atmospheric heat, general meteoric actions, and other appreciable circumstances being similar. It cannot be said that any thing yet observed on this scene, has tended to dispel the mystery which involves the subject, and which appears to the writer to be one of much interest; but he believes, as he has stated in other places, that this and other interesting but obscure points, in the etiology of endemic disease, will eventually be discovered, if ever successfully traced, in things around and under the soil, especially in the subjacent rocky structures.

November 9th. During the last month, the weather has, on the whole, been fine, and, judging by sensible qualities, should have been favourable to health. On three occasions, viz., on the 1st, 10th, and 12th of October, it rained rather heavily, with strong breeze from the northward. With these exceptions, scarce any rain has fallen; and the sky has generally been clear, the breezes varying much in direction and force, but for the most part, northerly and moderate. The thermometer fell once for two hours to 66° , and has risen to 83° , but these were the extreme points, and the general range has been between 74° and 78° . The barometer has mostly been high, not falling below 30, and rising to 30.20, a steady elevation indicative of the confirmed northerly monsoon. There has been no thunder, nor other meteoric appearance worthy of notice, and tending to excite apprehension in respect of health.

Yet, the atmospheric condition, so favourable in comparison with what had preceded it, and of which the most conspicuous elements have been, a falling and moderate temperature, northerly

breezes, a clear sky, unaffected by electrical movements, steady elevation of the barometer, and absence of humidity, has not hitherto had any decided sanatory effect; at first sight, it may even appear to have acted injuriously, as the relation of mortality to force has rather increased during the last few weeks. In one respect, namely, the induction of primary acute dysentery, there is no doubt that it has augmented the number of sick, and the amount of danger; but, barring this, it is believed that the atmospheric change is working beneficially, and will soon make its beneficial operation evident. Fever is now becoming rare, and will soon, except in a chronic recurrent form, be extinguished for the season; and with its extinction, it may be expected that the related flux will either cease or become comparatively rare. But for some time, and up to this date, it has been extremely prevalent, and, as at other times, highly intractable and eventually fatal in a majority of instances. Nine-tenths of the patients received into hospital have suffered from this form of disease, the subjects having laboured under it many weeks previously, or under it alternating and combined with periodic fever; and, with few exceptions, there has been so much organic change and resulting debility as to leave no room for any thing but palliative treatment. The protracted course of the disease, extending to many weeks or months, occasioned accumulation of mortality at some uncertain distance, though always at a considerable distance, from the time of attack. Thence the most sickly season, or that in which the largest number was under treatment in this disease, was not the most fatal; and hence the larger amount of mortality in the last few weeks.

In a preceding page, it was noticed that, at this place, there was more frequently some affection of stomach and small intestines, than in the north, where the disease was limited almost exclusively to the large intestines; the difference in question has become more remarkable of late. Post-mortem inspection reveals equal ravages in the colon and rectum, and even more striking atrophy of the small intestines, but the direct cause of death is more fre-

quently inflammatory action excited in the stomach, and portions of the small intestines, a short time before the fatal issue.

Within the last month, there has often also occurred, some time before death, a good deal of distress from dyspnœa, obstructed cough and expectoration. Whether this addition to the above affection is connected directly with reduction of temperature, and its rather sudden variation at times, is uncertain, though probable; but its essential agency consists in less of organic power, leading to difficulty and retardation in the pulmonic circulation, imperfect aeration of the blood, and abortive natural efforts to remove these evils. In such cases, there has sometimes been found condensation of parts of the pulmonary tissue, generally the most dependent; approaching to the state denominated hepatization, but more commonly all that has been observed, has been congestion in various degrees, and mucous loading of the air passages and cells.

When it was intimated above that increase of one form of disease had followed reduction of atmospheric heat, it was not meant that much mortality had resulted through that channel—original acute dysentery. It has seldom terminated in death, being here, as in most other places, when promptly and vigorously resisted, a very manageable malady. In fact, were the expression permissible, it might be said that it is absolutely a pleasure to deal with it, when compared with the chronic complicated, apparently often yielding, but in the long run, generally uncontrollable, modification of flux, of which there has been so much melancholy experience in China.

December 1st. Within the last week, 146 seamen and marines have been invalided from the squadron which has been employed here, and in the river and estuary, during the hot season lately terminated. The period embraced by the survey is about eight months. The proportion of men thus disposed of, as being temporarily or permanently, the latter most frequently, unserviceable, is, for the period in question, $7\frac{3}{4}$ of the mean number employed; and it may be confidently asserted that the measure was in no instance adopted where it was not bonâ fide required on account of

health ; that it was not perverted to other and illegitimate purposes, such as getting rid of men who, from moral delinquency or professional unfitness, are considered any thing but advantageous to the service. This necessary reduction of force by invaliding added to that from death, to be more particularly noticed in the sequel, presents no favourable view of the sanatory influence of the place, at least for the period to which it refers.

The cause of inefficiency and invaliding in these 146 cases was, with few exceptions, the chronic flux, complicated with periodic fever, so constantly and prominently presenting itself in these notes, and constituting the great endemic of the region. In a great majority of the whole number, there was no hope of permanent cure, or even of protracted existence here, whatever temporary check the cool season may have given to the inroads of the disease. Removal from the malarious influence which occasioned it, the salubrity of the ocean atmosphere, and the hope of home, will restore a considerable proportion ; but a number, there is little doubt, will die on the passage ; and others, though considered cured in a certain sense, will continue valetudinarians during the remainder of life, subject, through slight accidents, to returns of ague, or intestinal disturbance, and carrying with them to the grave, earthy complexions, emaciated frames, and sunken spirits, the wrecks of health resulting from the paludal poison of the shores of China.

As stated under the last date, November 9th, and more remarkably since, there has been increase of pure primary dysentery, and diminution in the number of admitted cases of chronic complicated flux ; and, as formerly observed, the change is favourable ; for, though the dysenteric attacks have been sharp, most frequently severe, they have, for the most part, and in moderate time, yielded to the treatment adopted. The change has been concurrent, and progressively, with change in the amount of atmospheric heat, and there can be little doubt depends principally upon it.

The thermometrical range has been considerable : the highest degree 80°, the lowest, which was this morning, 56°, being ten

lower than it was at the same time yesterday. The ordinary variation, however, has been from 64° to 66° . The wind is at present fresh from north-west, the sky being clear and the atmosphere dry. Rain fell three times sparingly; and the barometer has been steadily high, for China, seldom, and then only for a short time, falling below thirty inches. In short, the atmosphere, judging by its appreciable qualities, combines a large proportion of the elements of salubrity, the effects of which may soon be expected to become more apparent than they have yet been.

1844, January 1st. Since last date, the weather has been fine, much resembling that of the three preceding weeks, further reduction of temperature being inconsiderable, excepting one morning for a few hours. On that occasion, the thermometer fell to 51° , but its general range has been between 62° and 68° ; one afternoon, it rose to 78° . The barometer has not fallen below 30, and has generally been higher by two-tenths of an inch. The wind has been northerly, though varying considerably towards east and west; rain fell on the 14th, 15th, and 16th; on the first day heavily.

With continued reduction of temperature, there has been, as was anticipated, improvement in health lately to a marked and gratifying extent. There are, but rarely, slight cases of febrile disease and occasional attacks of flux, generally recurrent, the dysenteric affections of the few last weeks having now nearly disappeared. Of other forms of disease there are scarce any instances, so that the ships at this anchorage may be pronounced healthy at present. The same remark, with slight restriction, may be applied to the residents on the island, both military and civil, at least in respect of recent affections; for, among the former especially there is a large proportion of invalids, and incurable cases, the effects of the by-gone season. The proportion of sick of the naval force is not now more than 5 per cent., and few of those under treatment are suffering from serious disease. The ships employed in the north, at Kulungsu, Chusan, Ningpo, and Shanghai, were also, by recent reports, healthy; the Chinese squadron may,

therefore, with one or two exceptions, be considered free from disease of a prevalent and destructive character.

One of the exceptions alluded to is in the Childers now, and for some time past stationed at Whampoa. By a like return, it appears that she had 45, her complement being 130, on the sick list, of whom 24 were confined to bed, and that she had in a short time three fatal cases of dysentery. This was the fatal form of disease, though a large portion of her list was constituted by intermittent fever. This brig, ever since her service in the Yang-tse-Kiang, has had a large proportion of sick, which employment at Whampoa, succeeding to, and in comparison with, Hong-Kong, has not lessened or moderated; on the contrary, she has suffered more severely since the change. The other vessel respecting which there is doubt, is the Driver—a steamer, which proceeded hence a few weeks ago for the northern ports; and she too has always had more than an average proportion of sick. For some time before leaving this port, she had had a long sick list with a preponderance of bad cases of flux and considerable resulting mortality; but it is hoped that the cruise, being much at sea, with notable increase of cold, will act beneficially, and that in a high degree.

This morning, there are 13 patients only in the hospital of the Minden, 5 of them being privates of the 18th regt., so that there remains no more than 8 of the squadron, all convalescent. This, concurrently with the insignificant sick lists of the squadron, is a gratifying state of things, compared with what it was a few weeks ago, when the hospital was full, a large proportion of the patients being in a condition altogether hopeless; and the ratio of the whole force on the surgeon's lists was from 20 to 30 per cent.

But a considerable portion of the hospital patients were from the land force, especially the 55th regt.; and among them the mortality was much higher than ever in those from the squadron. Since the 15th of June, 129 men from that corps were admitted, of whom 48 have died; and of 18 discharged two days ago in consequence of their having obtained hospital accommodation near the barrack ashore, some will die soon, and others be sent to Eng-

land, not more than four or five probably returning to duty. The process by which life was destroyed in all these 48 cases, though differing in violence, rapidity, and some minor circumstances, has been, in essentials, almost exactly the same. First, there was periodic fever, generally remittent, which, on yielding, was succeeded by flux, varying in force and character, frequently giving way, on the accession of ague fits especially, but as frequently returning, and occasionally, though seldom, there has been recurrence of violent remittent fever. In every case, the miasmatic aspect, sallow, clay-coloured complexion, seldom yellow, pale lips, and deeply emaciated frame, was conspicuous. In a majority of instances, there was dropsy, varying from time to time, both in parts affected and in degree, in the same person, but rarely becoming oppressive; in many it was universal, at least in respect of the surface and abdomen; and when thus universal, the effusion being, as sometimes happened, great, there has often been incessant purging, with paralysis of the sphincter ani, rendering the subject as hideous and wretched a spectacle as imagination can well picture.

February 1st. During the month of January, the weather, as a whole, was remarkably fine, agreeable to sensation and favourable to health. The thermometer rose thrice above 70° , and fell once to 50° ; its ordinary range, however, was between 60° and 66° . On two occasions, the barometer sunk to 29.80 for a short time, but during the rest of the period, was above 30, once by half an inch. With these instrumental indications, there was a clear serene sky, during three-fourths of the time, the wind being pretty steadily from north-east, varying much in force, but mostly moderate and exhilarating; sometimes it fell so low as to approach a calm closely, and once, for a few hours, had a southerly direction. The atmosphere has been free from moisture in an uncommon degree, and no rain fell till the last two days, except a slight shower a week previously. For a week the sky has been densely clouded, the mountain tops being enveloped in fogs, which occasionally descend to within a short distance of the base. On the 30th, it

rained nearly the whole day, and lightly, after intervals, on the 31st; and though it is now dry, the sky is overcast and gloomy, with light airs, and falling barometer; thermometer, 56°.

The squadron continues healthy, without any prevalent form of disease, though there is still greater tendency to periodic fever and flux than any other. All the ships' sick lists, except that of the Childers, which is lessening, are low. The Childers is still at Whampoa, but will soon sail for England. Independently of her, the proportion of sick of the naval force, at present here, is not more than three per cent.; and the cases under treatment are generally slight. A week ago, however, it was found necessary to invalid eleven men, four of them in hospital, for chronic flux, contracted during the past hot season, most of them complicated with, or succeeding to periodic fever.

From preceding statements, unfavourable impressions respecting the sanatory influence of Hong-Kong must arise; and the following more precise information will not tend to correct, and by correcting, remove them. During the months of May, June, July, August, September, and October, the rate of mortality in the naval force, stationed in the bay and immediate neighbourhood, was $4\frac{1}{2}$ per cent. of the employed, which, added to the number withdrawn from the squadron by invaliding, being, as noticed above, in the proportion of $7\frac{3}{4}$ per cent., makes a serious reduction of strength.

From information just obtained,* it appears that, during the same period, the mortality among the European troops on the island amounted to 24 per cent., compared with which the naval loss is insignificant; and that the rate of dying among the Indian troops, forming part of the garrison, was $7\frac{1}{2}$ per cent. The total heavy loss sustained by the British troops was not however equally, or nearly equally, shared by the whole. The greater portion by much fell on the 55th regt., the Royal Artillery, and a detachment of the 98th regt., quartered in the neighbourhood, as was intimated above. The body of the 98th, stationed on a low narrow

* Information which, though not official, is correct.

neck of land, on the opposite side of the island, though not highly efficient, and burthened with a long sick list, suffered comparatively little by death ; so that while its rate of mortality was much under, that of the other detachments was much over, 24 per cent. But the particulars of each, and the probable reason of increase or diminution in different corps, the writer does not think it necessary further to enter on, as the subject does not fall within the scope of his special duties ; and he is sure that the medical officers of the army will give it all the attention it deserves.

Difficulty was encountered in determining the relation of deaths to the number of European civil residents, during the space of time under review ; but, collecting information from various sources, the rate of mortality was estimated at about 10 per cent. Fully a half, much more than the half of the total deaths resulting from endemic disease, can, however, be clearly traced to the swampy rice-grounds eastward of the town, as noticed in a preceding page ; persons residing in the town, especially in its central parts, as has also been noticed, suffering comparatively little.

The six months, from May to October inclusive, were chosen for the calculation, because they were believed at the time to constitute the most fatal season ; but if the year be divided into two equal parts, with this view, it would be better to omit May and include November ; at least, this would be a more correct division, judging by the last season.

Discouraging as the above facts are, and tending as they unquestionably do, to fasten a bad climatorial character on Hong-Kong, at the very commencement of its colonial history, the writer thinks that they have occasioned more unfavourable impressions, and gloomy apprehensions in many minds, than, if considered calmly in all their bearings, they ought. In similar situations, in places corresponding, or nearly corresponding as to latitude, and subject to febrile endemics, it is known that the morbid products of the soil and climate—the fevers of the locality, by whatever name they may be called, have periods of activity and quiescence, of exacerbation and remission, so to speak, comparing

one year with a number, more or less, of years preceeding and following it; there are even intervals of complete exemption, scarce an instance of the peculiar disease of the region appearing for considerable spaces of time. What the agency is which occasions such rise and fall, the periodic growth, maturation, and suspension of the cause of endemic fevers, may never be ascertained; and it would not be in place here to speculate respecting it. The results are the interesting points in connexion with the subject under notice, and they are so familiar as to make any citation of them unnecessary. If, in reference to it without entertaining the question of the agency which causes such periodic movements in the frequency and force of periodic fevers generally, it were alleged that the sickness and mortality of last year were aggravated by the absence of typhoons, or of gales approaching them in force; that had they blown as they often do in these seas, they would have forcibly destroyed and dissipated the miasmatic exhalations, and so have defeated the atmosphere, the allegation would be simply conjectural, though not unreasonable.

It is certain, and this is one ground of looking hopefully to the future, and excepting it from the ban which many are disposed to pronounce against it, that Hong-Kong was not the only unhealthy position in this neighbourhood during the past season. At every point in the Canton river and estuary, and around their shores, where Europeans resort, there was much more than the ordinary amount of disease and death; at Macao and Whampoa, as well as at the provincial capital, such has been remarkably the case. An intelligent non-professional gentleman, long resident in these parts, informed the writer that the by-gone year has proved much more fatal at the places last named than any which has preceded it since 1828, which it very closely resembled. This is in exact accordance with what is observed of endemic fever in other parts of the world, though the interval of exemption is longer than most of them are favoured with; and no reason has yet appeared why Hong-Kong should prove an exception; why a period, longer or shorter, of remission, perhaps intermission, should not be

granted it. It is believed, judging by the analogies of all places similarly circumstanced, that the periodic accumulation of the cause of the endemic, as well at Hong-Kong as in the vicinity, was, to a certain extent, discharged last season, and that an interval of comparative immunity will follow.

Such is one ground of hope, that, namely, which is derived from great periodic physieal movements, though nothing is known of the nature of their products or mode of acting, and little, if any thing, of the laws which regulate them. Another ground, and though it may seem presumptuous on being proposed, one of more certain promise, remains to be noticed ; and its greater certainty arises from what may appear to constitute its presumption, namely, on its being the work of man, and independent of the mysterious natural agency alluded to above ; and, because it has to deal with superficial possible causes of disease which are at once within easy reach, and are generally pregnant with mischief.

In relation to the artificial, and therefore unnecessary causes of disease operating at Chusan and on the adjacent shores, it was observed that such agency was, in a great measure, occasioned by the culture of rice, and the manner in which the land was managed for that purpose, and it was intimated that, could the inhabitants be induced to abandon that grain, and raise wheat instead, a plenteous source of sickness and mortality would be avoided. There, however, except on a very small scale, and for a short period, persuasion is the only means of attaining the object ; and that it is apprehended will avail but little with the Chinese, especially on the subject of sustenance. At Hong-Kong, on the contrary, there is no difficulty. The island is small and barren, and entirely at the disposal of government. The value of rice raised, or which could be raised annually, is so trifling as not to deserve consideration. If it were a hundred fold greater than it is, it should not be permitted to weigh in the decision, and its growth should be prohibited absolutely by public ordinance. But the work of reform must not stop here ; to be effectual it must be carried much further. If the cultivation of rice shall simply cease, and the fields

where it grew be allowed to run waste, as has happened to some extent, both here and at Kulungsu, it would be better that the old practice were pursued vigorously. Of this the writer is satisfied. He has a strong conviction that a cultivated rice-field is much less dangerous than the broken, swampy, weed-covered condition of the surface, which follows its neglect; and his views generally of what is required to divest the soil of its poisonous qualities will appear from the following joint official report, presented last July, by order, to Vice-Admiral Sir William Parker, the commander-in-chief.

“SIR,

In obedience to your order, dated the 3rd instant, directing me to take to my assistance the surgeons of the Cornwallis and Agincourt,* and carefully examine the localities adjacent to the West Naval Stores, where numerous cases of bilious remittent fever have lately occurred, sickness having prevailed to a considerable extent, at the same time, in the wing of H. M. 55th regt., which is cantoned in that vicinity, after careful local investigation, I have the honour, in conjunction with those officers, to submit the following report to your Excellency's consideration.

“Immediately in the rear of West Point Naval Stores, and close to the ridge, on its east side, where the wing of the 55th regt. is quartered, there is a considerable extent of surface, which is either in a swampy state, or in a condition^{*} closely allied to that of swamp; that is, water is either stagnant, or moving slowly and uncertainly, in many places, such places abounding in vegetable products either growing or decomposing rapidly. In other spots where water does not appear stagnant on the surface, there is abundant moisture immediately under fostering the growth of weeds, which spring up and decay speedily, giving out copiously the aerial products of vegetable matter. Some points in Chinese agriculture, especially that of making terraces, by forming artificial levels, tend to create and keep up a swampy state of the surface, and there are many such levels in the locality under consideration.

* Dr. D. King and Mr. J. W. Reid.

“On the west side of Barrack Hill, and close to its base, there is a considerable portion of land in a state very similar to that just pointed out on the east, and in the rear of the Naval Stores. Whether that on the west side is as detrimental to the guard stationed at the Naval Stores, as that on the east side of Barrack Hill, may be doubted; but the distance is not sufficient to remove apprehension of its injurious power.

“That such a surface, acted on by atmospheric heat ranging from 80° to 90° , during many successive weeks annually, should produce malarious exhalations, and that they should occasion sickness, is in the ordinary course of things; that the disease excited should be of the precise forms found here, viz., remittent fever, intermittent fever, and flux, is also what might be expected.

“Such being the evil, and its apparent cause, the question of remedies presents itself.

“The first and most important refers to clearing the surface of superfluous water, whether stagnant or moving slowly; and for it the answer, in two words, is, efficient draining. But to accomplish that, it will be proper to break down the artificial levels alluded to above, and restore the original natural slope of the land towards the sea, which being considerable in most places, will render the process of effective draining easy. When that is accomplished, the ground should be cleared of all remaining vegetable matter, whether in a state of growth and decay on the surface, or consisting of decomposing roots under the surface; thus the surface will at once be rendered dry and clean.

“But to render the remedial process complete, it will be of importance to cover the dry and clear ground with some sort of plant, which shall grow quickly, be agreeable to the eye, and nutritious, and on that account become an object of profit and interest. For this purpose, a beautiful cultivated grass, with a flush of dark red flowers, which was seen growing abundantly at Chusan, suggests itself. Its precise habits are not known, but it grew in a dry soil, and resembled, if it was not identical with, the

plant called sainfoin in England. This, or some such plant, which shall speedily and effectually cover the soil, will produce beneficial effects in a sanatory point of view. First, it will dispose healthfully of rain as it falls; second, it will tend to the salubrious modification of temperature, reducing it in hot, and increasing it in cold weather; and, third, which is not unimportant, it will impart a cheerful and refreshing aspect to the scene. Being highly nutritious to cattle, it would be carefully tended, cut, and carried, and all decomposing remains would thereby be prevented.

“Whether, if these measures were carried into full effect, periodic fevers would entirely cease, cannot be safely asserted; but it might be pretty confidently predicted that they would become much less frequent and fatal than they have heretofore been; and, looking at the form and situation of the soil and subsoil, and other natural features of the place, without speculating on what takes place below the surface, or attempting to trace the occult causes of disease there, it is believed that this would prove more, perhaps much more, healthy than many other intertropical positions.

“Westward of Barraek Hill, to Quarry Hill, there are many places especially towards the base of the mountain, where water stagnates, or moves slowly, and where there are numerous terraces, all of which are recommended to be treated, by draining, cleansing, and cultivating, as suggested for the space near Barraek Hill.”

Similar treatment should be applied to all the hollows and terraces, as well as to numerous naturally swampy spots, at the bottom, and on the sides of the ravines, by which the island, especially on its northern aspect, is so much indented; the brushwood, with which many of them abound, being, at the same time, extirpated. A large well-defined water-course should be made down the centre of each, into which numerous drains should be led from the declivities on either side, taking care that their frequency and direction be such as to keep the soil clear of stagnant water, and its products, at all seasons; and this important end might be obtained, without vast labour, with no great expenditure of money, and,

when the simple principle of the operation is understood, a very moderate portion of skill. It is true that, with increase of European settlers, extended occupation of the surface, and consequent augmentation of house-building, road-making, &c., some of the sources of disease noticed above will necessarily be removed, though their removal is not contemplated. Such works are going on in the town and neighbourhood, and will make progress, at whatever rate; but interests of such importance should not be left to the direction of private speculations, and contingent events. Here, as elsewhere, especially in new settlements, and in respect of public health, the directive, as well as the coercive, functions of government, ought to be exercised. Colonists are too apt, in the first instance at least, to consider the money profits of a place almost exclusively. When sickness and death surround them, they deprecate and deplore the evil, but have little power individually, if they were willing, and knew how, to remedy it. With them also the paid servants of the crown, garrisons, &c., suffer, and require to be frequently relieved, or replaced, at great expense; so that, divesting the question of its bearing on humanity, and viewing it merely as one of finance, judicious sanitary regulations cannot be too carefully studied, and rigidly enforced.

March 1st. Since last date, there has been little change in the weather, or health condition of the squadron, the former continuing fine, the latter favourable, in a high degree; the slight difference observed was in favour of the month just terminated. The thermometer fell once to 45° in the morning, and rose to 73° on two occasions; but, as in the preceding month, the common range was between 60° and 66° . With this, the beau ideal of temperature, there have been moderate exhilarating northerly breezes, the sky being generally clear, though at times, especially when the wind tended to the west, it was overcast. Rain fell lightly, for short periods, on three different days; and the barometer, though it vacillated a good deal, was, for the most part, above 30 inches. Altogether, it would be difficult to conceive an atmospheric condition more conducive to health; and the effect has justified the

expectation. The nights have occasionally been cold in relation to the day heat, and there has been a slight accession of catarrhal affections; but the sick is under three per cent. of the employed, and there is scarcely a remnant of the endemic maladies which proved so fatal last season.

April 1st. The weather of last month was not so uniformly fine, cool, and favourable to health, as it had been for many preceding weeks; it varied a good deal in many marked points, especially in respect of atmospheric heat, which, however, on the whole, increased progressively, most rapidly, and considerably, since the equinox. The extreme degrees of the thermometer were 63° and 80° , the latter having been reached only within the last few days. During the first three weeks, it ranged generally between 68° and 74° ; since, it has been higher, with little diurnal variation, particularly on the 30th and 31st, when it ascended to 80° , and did not sink below 78° . Rain fell on thirteen different days, sparingly, however, and for short periods, except on the 21st, when it was abundant for many hours, with strong north-east wind. The breezes were generally light from the northward, but at times strong, tending to, and becoming southerly. For four days past, they have had no northing, and have been very uncertain, sometimes sweeping round the extremities of the island in strong squalls, at other times being scarcely felt. There were some bright days, but generally the sky was screened by dense clouds, the mountains being enveloped in thick fog. With these indications of failing northerly monsoon, which is now nearly exhausted, and such attributes of unsettled weather, the mercury in the barometer has been, and continues high, and singularly steady, standing, as it has stood, with the slightest possible variation, at $30\frac{1}{2}$ inches

Although the ships' sick lists are not so light as they had been in the three preceding months, they are anything but heavy; and the cases under treatment are unimportant, consisting chiefly of common ulcers, venereal affections, bronchial and other diseases, resulting from accidents, simple atmospheric action, abuse of what

the ancients called non-naturals, and other forms of misconduct. From endemic maladies, there continues almost entire immunity.

A case of small-pox, received from the *Castor*, on the 13th ult., in the fifth day of its progress, deserves notice, having hitherto proved a solitary one, not only in that ship, but in the squadron; and, as far as can be ascertained, after diligent inquiry, in the colony, or neighbourhood. It occurred in C. Marden, a private marine, aged 21 years, who had been vaccinated in infancy; at least, though he does not recollect, he has two distinct cicatrices on the part usually selected for the operation of the right arm. He left England in the same ship to which he belongs, eight months ago, and in which no disease of doubtful character, and at all resembling it, had appeared. Respecting its precise nature, there is no doubt; as the diagnostic symptoms of each stage of the affection were prominently exhibited, following each other in regular succession, and lasting the usual time. Its force was considerable, though not dangerous; and the pustules on the face were as closely packed as possible, short of confluence.

The curious, perhaps important consideration, arising out of it, is its origin, amounting to this—was it special or common? And necessarily connected with it, the general inquiry, does *variola vera* ever arise, independently of personal infection; in other words, can it be developed in one person, without being derived directly, or indirectly, from another person who has, or who has had, it? The question may sound startling, perhaps be considered the offspring of rank heterodoxy, and reckless folly. Yet, looking at this case, in connexion with many others, which no human industry could trace to their source, it does not appear unreasonable. In the case under notice, can it be conceived that the seminal element of small-pox was deposited in the *Castor* before she left England, where, by the way, there is no evidence of its existence, and there lay dormant, till it was vivified, and became productive, in the person of C. M., three months after her arrival at Hong-Kong? Would such a conclusion be reasonable? Would it not rather be reached by abandoning the process of thought through

which the mind endeavours to connect efficiently things before with things which follow, and to substitute for it a blind, arbitrary act of necessity? Why should it shock the inductive sense, and be considered palpably unphilosophical, to suppose that the agency—the cause underived from another living creature—which excited small-pox at first, should not be capable, in certain similar circumstances, of re-producing it? It will scarcely be maintained, in the present age, that the Omnipotent created the seeds of certain diseases, as well as of organised beings, for the purpose of their progressive propagation; nor will it be asserted that the equivocal generation of variolous virns is as much beyond our apprehension as that of animals and plants. It is probable that here, as in many other instances, the *ne nisi dignus vindice* doctrine has been too exclusively applied.

April 28th. Soon after the last note was written, two men, viz. John Bratten, P. M., æt. 21, and Gideon Croker, S., æt. 21, were simultaneously affected by febrile symptoms, which terminated in eruptive disease, the first purely variolous, the last varioloid. A fortnight later, John Boer, S., æt. 26, was affected by small-pox; five days subsequently, John Simmons, S., æt. 22; and again, after two days, William Rose, S., æt. 34, was attacked by the same disease. These five men belong to the ship's company of the *Minden*; and as the disease followed the reception of C. Marden from the *Castor*, it may be assumed that its cause was introduced with him. Yet there are difficulties in the way of tracing it from him to them; for the first man affected in the *Minden* had no communication, direct or indirect, with the man from the *Castor*, nor had the men subsequently attacked with those which preceded them, after the disease manifested itself. The small-pox case from the *Castor*, febrile symptoms having ceased, was taken immediately to the fore part of the larboard side of the lower deck, where the subject was put into bed, whence he was not allowed to move till the disease was not only cured, but for a week after the process of desquamation was completed; warm baths, with friction, were then used; after which, the bed

and bed-clothes were carried to the wash-house, as the personal clothing had been on admission, to be thoroughly washed, fumigated, and ventilated. The same regulations have been rigidly acted on in all the succeeding cases.

While the man from the *Castor* was placed in the foremost part of the lower deck on the larboard side, the men affected in the *Minden* messed on the starboard side of the main deck; and it is worthy of notice, that the one first seized, the marine, messed at the after-part of that deck—the greatest distance in the ship; the others belonged to alternate messes, on the same side, proceeding forward; so that the disease took a course exactly the reverse of what was to be expected. It is further remarkable, that during this period, the wind, when not in the line of the ship's length, fell constantly on the starboard side; its evident action, therefore, was to carry emanations of any kind overboard on the larboard side of the lower deck, and away from the starboard side of the main deck.

Again, none of the patients, most of them young, and affected by local disease, on the opposite side of the lower deck, have been attacked by small-pox. The men employed in washing the sheets, beds, &c., of small-pox patients have also escaped; and there has been no other case in the *Castor*, although C. Marden lived and slept among his messmates, the nature of the disease being masked, and without distinctive symptoms, till his removal to the hospital ship, on the fifth day. There is still no other case in the squadron, nor among the shore residents. These things, in connexion with the preceding note, ought to be stated; and there are some circumstances in the cases alluded to, which, in the still unsettled state of the question, as to the amount of protection which vaccine affords against variolous disease, appear worthy of record.

In the first case, that of J. Bratten, there was no mark, or memory of vaccination. In it, although the disease was far from dangerous or violent, it had considerable force, the pustules being closely packed, and universally diffused.

Gideon Croker had the characteristic scars of cow-pox on the arm, but no recollection of being vaccinated. In him, the eruption was scanty, and scarcely exhibited the entire aspect of small-pox. Nor was it variella; it more resembled what has been called horn-pock. No doubt it was an allied affection, but was a varioloid rather than variolous disease.

John Boer has no knowledge of being vaccinated, and shows no appearance of it on any part of the body. In him, the disease is much more severe than in any of the anterior cases. Although there is no malignity, the pustules are universally in contact, in many cases confluent. There is a good deal of secondary fever, but little apprehension of life.

John Simmons was never vaccinated, at least there is now no trace of it; in him the eruption is moderate, and making favourable progress, though there was a good deal of cerebral disturbance at first.

In the case of William Rose, the disease, on the fifth day, is unequivocally marked; yet this man, now 34 years of age, has perfect cicatrices, apparently the effects of cow-pox, on the arm, which probably was communicated in early infancy; and, at four years of age, suffered from natural small-pox rather severely, judging from the pits which remain, especially on the face.

Concurrently with these variolous affections, but not allied with them, there has been another eruptive disease, to which the name neuralgic erythema may be applied. After severe pains have affected various parts of the body for some time, frequently shifting their seat, unattended by swelling or inflammation, and not especially attacking joints, the cutaneous eruption presents itself, and seems to prove critical; at least, the pain is always much relieved; and goes off gradually afterwards. It appears mostly on the breast, back, and abdomen, occasions no palpable elevation of surface, is of a brown colour, verging on purple, sometimes occurring in detached patches of various sizes, at others in waving extended lines. Of such cases, there have lately been five in the crew of the Minden, none in any other vessel in harbour.

This is one of many instances in which a particular form of disease is limited to one ship out of a large number at the same anchorage, similarly employed, and equally exposed to general influences; their cause must consequently be derived from something in the ship in which they arise, however difficult that something may be to determine. A few weeks ago, one of the men of war, and one only in the harbour, had a considerable number of cases of eynanche parotidea nearly at the same time. Another, at a different time, and alone, had many cases of brief febrile disease, with predominant bronchial symptoms. Such visitations of individual vessels occur frequently, constituting what may not inappropriately be termed occasional ship endemics, sometimes becoming epidemic.

May 1st. Early on the 23rd of April, the thermometer fell to 62° , a degree of depression which, considering that the anchorage is within the tropic of Cancer, and that the sun had a northerly declination of thirteen degrees, is remarkable; but there had been a considerable fall of rain for two preceding days, the sun's rays were interecepted by a stratum of dense cloud, and the wind was strong from N.E., blowing over, and probably a great extent of, the continent. The weather during the month varied much, and the heat did not increase in the ratio which had begun with, and threatened to continue after, the equinox. The thermometer did not rise above 80° ; the barometer vacillated a good deal, but generally stood within one-tenth of an inch of 30, under or over; rain fell on ten days, but only twice in any quantity, being mostly in the form of passing showers; the wind has been from nearly every point of the compass, though northerly predominated, and its force has generally been considerable. There is now a season of uncertainty in the atmospheric currents, during which there is a struggle for mastery between the N.E. and S.W. monsoons; it will continue a little longer, but the latter will gradually gain prevalence over the former, and may be expected, about the beginning of June, to be established in full force. There is a similar period of conflicting winds, after the autumnal equinox, between

the cessation of the southerly, and setting in of the northerly monsoon, though the origin of the latter is better marked than that of the former.

With change of weather, there has been increase in the proportion of sick, and tendency to recurrence of endemic disease. The tendency, however, is slight, and the squadron is still healthy.

June 1st. As was expected, the weather in May proved unsettled, and varied much in many essential points. The wind changed frequently in direction, but had more southing than northing; and though there was marked difference in its force, occasionally falling calm for a few hours, it was, on the whole, considerable. The thermometric range was between 73° and 85° ; the barometer was rather depressed, not rising above 30, falling to 29.80, and generally standing under 29.90. Although there were a few very slight showers, it could not be said to rain till the 20th, when there was a considerable fall. On the 20th, there was thunder, the first experienced for some months; since which, it has rained daily, often heavily during many consecutive hours; a large quantity of rain has consequently fallen within the last ten days, more, indeed, than during many preceding weeks. The sky is gloomy, the mountains are enveloped in fogs, and there are masses of low rain clouds, with the appearance of wet weather continuing. The breeze is light from S. W.; the thermometer is 80° , and the barometer 29.85. The S. W. monsoon seems established.

The force continues healthy. There is no prevalent endemic disease; the ships' sick lists are lower than they were a month ago. The proportion under treatment is not more than four-and-a-half per cent., and few of the cases are dangerous.

There have been no additional cases of small-pox in the crew of the Minden, or other ships employed here, though one case of varioloid disease has been received into hospital, from the Spiteful, just arrived from Bombay. But there have been a few cases of an exanthematous affection in this ship's company, which it has been found difficult to name and classify. In some, after smart

initial fever, lasting from two to three days, there was a sudden eruption of minute vesicles, which assumed a pocky appearance, becoming purulent in a day or two, and, in another day or two, disappearing by rapid absorption; and, so far, agreeing pretty closely with the definition of varicella. In another case or two, there was a similar eruption, terminating in like manner, without any preceding or accompanying fever, or other derangement of health, which could be detected. In some the vesicles became pustules in one place, and disappeared in that place, while they were coming out in another; and in others, again, the vesicles disappeared as rapidly as they were formed, running their course in from three to four days, without becoming purulent. These affections have been confined to the Minden, none occurring in any other vessel in harbour. Their interest, as they had no pathological importance, depends on their cause. Is it of the same nature, and from the same common stock, as that which produced small-pox, modified in itself, and perhaps in its subjects? The writer is disposed, looking to all the circumstances of the case, especially the fact that all the cases of both forms of disease, excepting the first one of small-pox from the Castor, and of varioloid disease from the Spiteful, occurred in the Minden, to answer in the affirmative.

There have been no more cases of the neuralgic erythema mentioned in a former note.

In adverting to the difficulty of tracing the small-pox personally through the Minden, the case of the washers appears worthy of more particular and minute notice than was taken of it above. These men, four in number, young and healthy, might have been supposed to be put in a position of peculiar danger, inasmuch as they washed, with strong friction, in water as near the boiling point as could be borne, all the wearing apparel of the affected, when first attacked, and the beds, shirts, blankets, &c., during the progress, and after the cessation of the disease; the sheets being deeply stained, often deeply incrustated by the matter of the pustules. It is true they all had marks, not recollection of being

vaccinated ; but that failed to secure others, much less, or rather not at all, apparently exposed.

The duties and condition of those men may be briefly noticed for another purpose. Since the hospital was opened, they have done the whole washing of the establishment—a work, at times, when full of patients, with a large proportion of flux cases, attended by involuntary discharges, of heavy and sickening labour. The wash-house is a small space of about eight feet by six, in the starboard bow of the ship, where, from the quantity of dirty linen, the men have often room barely to stand at their tubs. Into the tubs, boiling water is frequently passed, which necessarily raises the temperature of the apartment, and generally keeps it full of steam. While washing is going on, the heat there is from three to four degrees higher than in any other parts of the ship, in the hot months, which is the laborious period. It, therefore, then is constantly upwards of 90°. Yet these men thus employed, in such a crib, under the influence of intense heat, and exposed to the volatilized products of multiplied human excretions, have enjoyed a high degree of health. They are the only class of men—not a large one certainly—who have never been affected by disease of any description, but, on the contrary, have had their various animal functions in vigorous exercise, and have continued strong and muscular. Hence it may be concluded that high heat and abundant moisture are not simply, and in their own action, without the co-operation of other agents, inimical to health ; nay, that they are not necessarily rendered so by the copious admixture of animal emanations.

NOTE *referred to at page 146.*—Among the most promising means now employed for reforming, or rather revolutionizing, the moral, intellectual, and social condition of the Chinese, the writer would rank the medical missions lately established on their shores, at Canton, Hong-Kong, and Shanghae, and which will probably soon be extended to Ningpo, Amoy, and Foo-choo-foo. In thus

expressing himself, he does not wish to be understood as undervaluing, much less disparaging, the other instruments, and the men who use them for the same philanthropic purpose. He gives them all credit for pure and exalted motives ; he knows that many of them exhibit untiring zeal in their high vocation ; and he would therefore, so far as he might be permitted, give great commendation to them all. But whatever difference of opinion there may be as to the superior fitness and efficiency of the medical and clerical missionaries, to accomplish the work they have undertaken, there can be none as to the usefulness of both classes ; nor need there be any, as there is no real difficulty in the way, regarding their cordial co-operation, and the augmented benefit which their combined exertions would confer. It is certain that the field to be reclaimed is wide, and wild enough for a multitude of cultivators. It is also clear that while one party is doing essential work at one place, parties with different instruments, and different immediate objects, may be not less usefully occupied either on the same spot, or separately.

But the medical missionaries have the advantage of addressing themselves in the first instance, and in a way not to be overlooked or misunderstood, to the senses of the people whom they wish to enlighten. Without fee, or hope of pecuniary reward, they heal the sick, and give sight to the blind, knowing that they thus do unconditional good, and hoping, through the palpable benefits thus conferred, to open an easy channel of access to the affections and intellects of those with whom they deal ; who may become, in their turn, instructors and guides to the people with whom they shall afterwards associate. In their frequent, and, from its very nature, familiar intercourse, with the afflicted, the medical missionaries possess advantages which the man who addresses himself to the understanding only cannot obtain. They have consequently more potent means of touching the heart, and turning feelings of gratitude into instruments by which they may act powerfully on the dark mind. Though they do not directly assail the strongholds of bigotry and conceited ignorance, they trust, through the

agency of accumulated good works, which can neither excite jealousy in rulers, nor permit continued indifference among the people, so to undermine these antiquated structures, that they may ere long annihilate them, rearing in their room institutions of light and liberty, and substituting for worship of idols, adoration of the true God.

The Hospital of the Medical Mission, at Hong-Kong, which is under the direction of Dr. Hobson, and which is best known to the writer, may be taken as a general representative of those established at the other ports. Into it Chinese subjects, with every form of disease and injury, are admitted on the sole plea of bodily affliction; but, as affections of the eye are very prevalent, and so ineffectually or injuriously treated by the native practitioners, as to occasion much more than the usual proportion of helplessness and distress, a large amount of ophthalmic cases is received and successfully managed. Such persons as can afford it, subsist themselves; those who cannot, are provided for from the hospital funds.

There, everything which benevolence can devise, and which care and skill can accomplish, is effected for the patients, and thence, a large proportion of those admitted return to their native towns and hamlets, to tell their neighbours what the strangers have done for them. They have to speak only of benefits received. Their cherished habits were not violently attacked; their superstitious follies, and pagan perversions, were not made the subjects of ridicule or contemptuous pity; but they were led to their abandonment, by showing them a better system of things, and proving its vast superiority through its practical results. Persons who went in, wasted, maimed, or blind, came out with renovated vigour, and restored sight. Can the Chinese continue long to resist such teaching? "Blind, and in love with darkness," as they are, is it conceivable that they can go on hardening their hearts, and shutting the eyes of their understanding against such emphatic pleading in behalf of their own best interests? Will not reiteration of such good acts, especially restoration of

sight by operation, of which, till lately, they could no more form an idea than of a miracle, lead them to inquire whether the system which produces these effects is not better than their own. Honest inquiry is surely all that is wanted, for unapt to change as they are, and clinging to all old things in belief and practice, as they do, the scales would fall from their eyes, and the shackles from their minds, when the undisguised truth rose before them.

But while thus employed, labouring mediately to unchain and convert the Chinese mind, the medical missionaries find that the work is immense, the means to accomplish it small. Three or four men stationed at the verge of the empire, cannot be expected to contribute largely and speedily to the desired consummation. In order to increase the number of teachers and increase their usefulness in the most powerful manner, they endeavour to communicate their art, so far as their means of instruction permit, to intelligent natives. *Materia Medica*, the elements of chemistry and medicine, and the simpler surgical operations are taught successfully. Many materials which are necessary to make a scientific medical practitioner are yet wanting, but it is hoped that they will soon be supplied. Such, however, as are now available, are far from trifling, and promise much.

Some time ago, the writer saw a young man named Apoon, educated by Dr. Hobson, perform adroitly various operations on the eye, including that for cataract, in the Hong-Kong hospital. He was well acquainted with the structure of the eye, its diseases, and their most approved methods of treatment. During his residence in the hospital, he had acquired a competent knowledge of the English language, had the stores of information from the western world opened to him, and ample opportunities of learning the doctrines and precepts of Christianity.

He will soon return to his native place, near Canton, to dispense the fruits of what he gained at Hong-Kong. Others will follow, to penetrate further and further into the country, till the whole empire, it is hoped, shall be pervaded by those real reformers and benefactors of their fellows; and, they will have great

advantage over alien instructors. Speaking the language fluently, and appearing without the suspicion of bringing disguised evil under the cloak of professed benevolence, they will appeal effectually to the intellects, affections, and consciences of their countrymen.

It would not be wise, perhaps, to be over-sanguine respecting the transforming effects of these or any other measures of change in this quarter ; but, considering the mind of man in the abstract without reference to Chinese idiosyncrasy and training, they seem well-fitted for the purpose, worthy of prosecution, and deserving of encouragement, inasmuch as correct knowledge of the body, real information respecting its maladies, with efficient means of treating them, the convictions thence arising and other open sources of intelligence, do not appear compatible with perseverance in moral darkness. Revolution does not halt long in its career, and it is difficult to conceive how such lights and the shadows of idolatry can long co-exist.

SECTION VIII.

Healthfulness of the year 1844 compared with 1843—Cause of difference—Paucity of other forms of disease than the prevalent endemic—Adynamic character of disease.

Nov. 21st. The perilous portion of the year is past, and the prognostic hazarded in February, three months before its commencement, has been fulfilled. It was then noted as a subject, not only of hope, but of expectation—not merely desired, but fore-shown—for the reasons assigned, that the year 1843 would not closely resemble 1844, or some, perhaps many, subsequent years, in the production of disease and death at Hong-Kong; that in it the causes of sickness and mortality were given out by the soil in great relative excess; that it would therefore prove exceptional, in this respect, to the common course of years, and that those which followed would be marked by comparative immunity of various degrees; and the predictive opinions then formed have been amply confirmed by events, as far as they have succeeded, at least in their application to the naval force. This will be placed in a clear point of view by the following numerical facts.

During the six months, from May to October inclusive, the ratio of mortality in the Chinese squadron was, as nearly as possible, one per cent. of the employed; the proportion dying in this

harbour, at least when traced to disease originating here, being rather lower than at other stations of the command. The proportion invalided, during the same period, was close to two, while that of sick varied from four to eight per cent. of the employed. Of the patients sent to hospital, thirteen per cent. died; and though even this may appear a large proportion, it would probably not be considered so, if the nature and degree of disease with which they were affected were known. In order to render these facts more striking and illustrative, the most important of those having the same object in the corresponding period of last year, are repeated, that they may be more readily compared.

Then the ratio dying of the employed was $4\frac{1}{2}$, while that of invalided, for a somewhat longer period, was $7\frac{3}{4}$ per cent. At the same time, the proportion sick of the employed amounted occasionally to 20 per cent.; and of the number received into hospital, 33.3 per cent. died. It thus appears that the loss sustained by the naval force, whether permanent or temporary, during the dangerous season of 1844, was about one-fourth of that suffered in 1843. The writer has not, at present, the means of ascertaining how far the mortality of the land force differed from that of the preceding year during the same period. It is known that the difference in their favour has not at all equalled that of the navy; still he has reason to believe that the loss is much less, probably by a half nearly, than it was in 1843.

Reflecting on the unequal sanatory results of the two seasons, the mind necessarily turns, however unsuccessfully, to the consideration of the cause, eagerly examines all the circumstances of the case, and interrogates everything around, above, and below, with the view of determining the agency on which so much difference in effect depends.

First, the weather of the two seasons is looked to, in the hope that a reason for the difference may be found there; but the comparison leads to no satisfactory conclusion. It is true that in August of the present year, the weather differed sensibly from that of the same month in the last, being more wet and cloudy, and

the average heat of the air being about one degree lower. But the temperature of September was higher by, at least, as much; and the mean heat of the two seasons was, as nearly as possible, equal. As more rain fell in August and the latter part of July in 1844 than 1843, so the early part of the summer was much more dry; and it is believed—though this, as there was no actual measurement, is not positively affirmed—that the quantity which fell in the six months under consideration nearly corresponded in the two seasons.

There was more thunder in 1843 than 1844; lightning, at least that modification of it called “sheet,” which is not attended by thunder, and which appears to be so on account of distance, was about the same. Neither in the direction and force of wind, nor other observed meteoric agent, was there notable difference. But, if there was difference which was not noticed, the great and essential instrument in the formation of febrific miasmata remained in sufficient intensity; for it cannot be doubted that atmospheric heat, ranging from 82° to 88° , possesses abundant power for the production of any amount of deleterious exhalations from the soil; nor that it would, supposing the materials in the soil had been in the same state of accumulation and fitness for its action, this year, as last, have led to like effects. Thus, nothing appears in the atmospheric condition of the season to satisfy the inquirer; and it may be observed here, that there was nothing in the circumstances of the subjects, in their diet, occupation, or otherwise, different in the two years.

Turning from the unsatisfactory investigation of the atmosphere, in respect of heat, moisture, motion, electricity, and other matters, to the consideration of the surface on which it acts, nothing is discovered to dispel the obscurity which involves the subject, and enable the inquirer to say, here is an adequate reason for the different sanitary effects of the seasons, inasmuch as nothing has yet been accomplished to change its condition, free it from stagnant water and decomposing vegetables, and so purge it of its poisonous products.

Swampy spots of different descriptions and sizes, and in various degrees of offensive activity, abound, east and west of the town, some of them close to it; and it is matter of regret, at least, that hitherto no effectual attempt has been made to drain and destroy them. In some instances, the reformatory process would be of the slightest and least laborious kind. A few workmen, with spades in their hands, under the simplest direction, would do all that is required, at any rate for present benefit, and the benefit would probably be most important; nay, in many places, all that is necessary is to remove the artificial obstructions which have been formed to the natural flow of the surface water—a practice common in China, and consonant with Chinese notions of salubrity, as well as of productiveness, but which should surely not be permitted now in Hong-Kong. There is a considerable portion of the surface close to West Point, where barracks were built, and last year abandoned, on account of the ravages of periodic fever, still in this state, which might be rendered inoffensive to the sense, and probably innoxious to health, in a few days, at the expense of a few dollars; and there are many such places in the neighbourhood.

Improvements in town drainage, house-buildings, and road-making, are in progress, which will no doubt contribute materially to the comfort and well-being of the inhabitants; and much in these respects is wanted. But reformation must not stop there, or the work will not be half done. It must be carried, not partially and incidentally, but steadily, perseveringly, and with knowledge of what is necessary, into the adjacent malarious ravines, flats, and hollows. Let them be thoroughly drained, cleaned, and cleared of their impurities; and there need be no difficulty as to the kind of effect. The amount of benefit cannot be calculated beforehand; it may be confidently foretold, however, that the health of the residents will not suffer as it has done. But to return to the immediate object of this note, viz. the cause of difference in disease and death during 1843 and 1844.

Seeing that it cannot be traced to the atmosphere, or the sur-

face of the earth, or rather to their combined effects, the one operating on the other; as the former was essentially the same, and the latter had undergone no material alteration, not being deprived of its marshy and miasm generating qualities, we are driven to the conclusion that the difference in question depended on one of those mysterious physical movements alluded to in the note of the 1st of February, which give no sign to the senses or to instruments, being manifested in their results only; which are otherwise unknown, if not unknowable; but which, as they are the instruments through whose working, every now and then, after uncertain and irregular periods, endemic diseases of rare occurrence are converted into sweeping epidemics, must be endowed with great power.

This confession of ignorance, however, as well as of inability to resist such an enemy, can form no excuse for neglecting to do what is obviously and imperiously required of us; it cannot be admitted as an apology for leaving palpable superficial sources of danger unremoved and untouched. Their abolition is demanded by every argument. When that shall be accomplished, it is not asserted that epidemics will never arise; but the belief is expressed strongly that, should they recur, they will be deprived of more than half their power, as they will have little material to feed and extend them. To think and act otherwise would not be more wise than to neglect proper precautions against the artificial application of fire to certain inflammable substances, because, in some extraordinary circumstances, they are susceptible of spontaneous combustion.

The forms, as well as the sources of disease, have been the same this year as last, namely, periodic fever and flux. Ulcer has been so rare, as scarcely to deserve being included. The fever was generally remittent at the onset, assuming the intermittent type in its progress, being followed by, or alternating with it. The fluxes, as formerly, varied much in character and intensity, seldom answering to the definition of either dysentery or diarrhœa. In a great majority of instances, they succeeded attacks of fever,

very frequently were reciprocal with, and appeared to be vicarious of, them. Now, also as in preceding years, when either form of disease had much persistence, there was great reduction of strength excessive liability to relapse after partial and even apparently complete cure, tendency to general dropsy, structural lesion of the intestines, and death.

The difference in the sanatory results of these years, therefore, did not arise from difference in the nature of disease, it being the same, not only substantially, but in its tendencies and pervading characteristics. The comparative immunity of 1844 depended on the cause of the same endemic being relatively in little force, not much accumulated, or in a not advanced state of maturation: hence its effects were proportionately slight, unfrequent, and tractable.

On such difference as this is raised many a lofty, but indifferently founded pretension to improved methods of treating disease; and the vaunted superiority has its origin less, it is believed, in want of candour than inattention to, and consequent ignorance of, the dissimilar force with which the same disease acts at different times. A practitioner arriving here in the summer of 1844, would find a much larger proportion of the sick under his care recover than did the practitioner of 1843; he would, probably, with a laudable desire to accomplish more than the men earlier in the field had done, modify the means of treatment used by them, or apply something different; and to this modification or alteration of means, not to the comparatively slight morbid impression, he would be apt to ascribe his better fortune, counting it the effect of professional merit, not of changed circumstances. Having satisfied himself of this, he, and some others who are prone to believe much and to hope much, readily arrive at the conclusion, that his predecessors were inefficient practitioners; that they did not understand, or did not properly perform, what was required of them by the obligations of their office; and that they are, therefore, chargeable with the heavy crime of having allowed men to die who might have been saved.

The more that is seen of some forms of disease, and the more closely they are studied, including especially the precipitous fevers of the tropics, the more likely is the conviction to come and deepen, that medicine has often but little remedial control over them ; and grave questions will then arise as to whether artificial appliances, confused and contradictory as they often are, may not prove injurious rather than beneficial—if not curative or tending to cure, will they not become instruments of harm ? Experience also shows that, while we think we are making rapid onward progress, we are often moving in a circle only, returning, after a long, toilsome, unprofitable journey, to the spot where our ancestors arrived long ago. This truth, which should humble and correct not arrest us in the course of diligent sober inquiry, meets us at every turn. One example out of many may be alluded to, namely, the treatment of dysentery in India, though that of fevers in general would not be less in point.

After a variety of changes and revolutions, the most popular practice at present closely resembles that which was current sixty years ago, excepting the full animal diet and port wine, against which, at least the first, nature would sufficiently guard herself. It consists chiefly of opium, ipecacuan, and blue pill, with flannel ; avoiding all strong measures, it seeks, by gentle means, to soothe interior irritation, and determine to the surface, endeavouring, according to the views of Sydenham, to turn the fever, which has fallen on the intestines, outwards, and away from them. Different plans of practice are adopted there, as elsewhere, but this, according to a medical officer of standing, lately arrived at Hong-Kong from India, is the most in favour.

To what decision should such things lead ? Not to the abandonment, or careless pursuit of improvement, certainly, but to make us more laborious and rigid than we too often have been in investigating the fitness of means before they are used, more vigilant in observing and scrupulous in recording them, and more certain that we do not parade, as new and useful, instruments which are old or worthless, or boast of their superior efficacy in

cases unlike those in which they have been found unavailing by others. The careful culture of an art, still so undeterminate in many of its applications, cannot be too much encouraged, or earnestly pursued; for while so employed, although the immediate object should be missed, it may happen to us, as it happened to the men of old digging for hidden treasure, that we shall turn up something more valuable than that for which we were searching.

Having noted what appeared most worthy of record in the nature, origin, and effects of the prevalent forms of disease on these shores, it will not be out of place to allude shortly to those which, though frequent and occasioning much mortality in many other places, are comparatively uncommon and unimportant in the known parts of China. And here it might be sufficient to repeat what was written respecting the paucity of other than miasmatic affections at Chusan, as they are equally, if not in a higher degree, rare and insignificant at Hong-Kong. The endemic diseases of the locality—periodic fever and flux, having the same origin, intimately allied in their nature, and blended in action—are almost the only destructive agents. They absorb, and occupy the place of, other morbid powers: their influence is such, it would seem, as not to tolerate the rival action, or even, to any extent, the inferior operation of the more ordinary causes of disease. Like Aaron's rod among the wands of the magicians, they swallow up antagonists which, though feeble in their presence, are formidable elsewhere.

Phthisis is seldom observed, so seldom, that the writer has seen but one undoubted case of it, and that clearly originated in England, in an officer, who died at Suez, on his way back to England.

Bronchitis, though not common, occurs more frequently; in most cases during the progress, and in fatal terminations, towards the close of periodic fever and flux. As an original disease, having much power, and apart from common catarrh, it is seldom met with; not frequently as a superadded affection. Whether primary or secondary, it has been found giving rise to pulmonary

abscess; and there is little doubt that it has been confounded with phthisis. Diagnosis, especially at the onset, is difficult on board ship; and errors will arise when every effort is made to avoid them. One thing is certain, namely, that idiopathic affections of the lungs are not common at Hong-Kong; and that tubercular phthisis, originating here, has hitherto been all but unknown, if ever witnessed, at least in the naval force.

Such exemption is in conformity with what has been noted in other miasmatic districts; it has often been observed that where ague prevails, consumption of the lungs is not rife. But those districts have not been supposed unfavourable to the production of rheumatism; on the contrary, they have often seemed, if not to excite, to dispose the body to its attacks. However this may have been in other places, it has not proved so here. Few cases of rheumatism appear in the medical returns, very few have been sent to hospital, and it is remarkable, considering the frequency of such things on other stations, that in no instance, during the writer's service in China, has the disease led to invaliding. May not neuralgic affections have been set down as rheumatic? The former are not uncommon in malarious positions, and have occurred, once in considerable numbers here, at a time when the more open and injurious effects of the poison were very rarely manifested. In whatever way the question should be answered in respect of other regions, it is certain that articular rheumatism has not often occurred, and has proved a very inconsiderable source of inefficiency in China.

Similar observations have been made on the structural affections of other tissues. Primary inflammation of internal organs has seldom been encountered. As yet, this has been so strikingly the case, that the order "phlegmasiæ" of Cullen, in most other places, forming so large a portion of human maladies, might almost be struck out of the nosological catalogue, without making an exception in favour of hepatitis, generally considered the peculiar and overwhelming morbid product of the east. Could the surface be deprived of its malarious emanations, the diseases named above

remaining inoperative, as they now are, Hong-Kong would be one of the most salubrious spots in the world.

There is great disposition to the formation of intestinal worms, almost exclusively lumbrici, here, as well as at Chusan, which are sometimes generated in extraordinary numbers, being occasionally voided by the mouth, but more commonly by the anus, and giving no symptoms of their existence till they are discharged; they are found in masses on post-mortem examinations, after fever and flux; the former, as frequently as the latter, when protracted. Their extensive production has been ascribed, erroneously it is believed, at Chusan, to the water found there, containing, as it sometimes does, portions of earthy and vegetable matter; for they are as numerous at Hong-Kong, where the water is singularly clear, and free from admixture of any kind, except small quantities of mineral substances, which it holds in perfect solution, and which cannot be supposed conducive to such effects. There is little apparent difficulty in accounting for the abundance of these parasites in China; it can scarcely be questioned that the excessive tendency to, and occasional accumulation of, them, arises out of the enfeebled, unhealthy condition of the alimentary apparatus, more particularly of the interior membrane; being infested by depraved secretions, and coated with adhesive mucus, it ceases to perform its proper functions adequately; and from the same cause, becomes the prolific bed of those creatures. Neither their origin in the intestines, mode of production, nor introduction, is of any practical importance; it is probable that their ova or elementary germs are extensively diffused, and constantly carried into the stomach with dietetic substances: it is certain that their existence is incompatible with a sound state of the living parts, in which they are developed; and that what is required for their prevention is vigorous healthy action in these parts.

On the same or a similar condition of the stomach and intestines, certain cutaneous affections of the locality are believed chiefly to depend; particularly diffused pustulous eruptions, and

pustular abscesses occurring singly, or as more frequently happens successively, for a while, in the same person.

The debilitating influence of climate, and the adynamic character which pervades disease in China, have been noticed more than once in preceding pages ; both are exhibited, not only in morbid actions while they exist, but also in their effects, in the restorative process of injuries, and other circumstances of the animal economy. Thus, there is singular tendency to relapse and recurrence in endemic disease ; and, after it is apparently subdued, convalescence is tedious, too often imperfect. Ulcers are difficult to heal, and when cured, their cicatrices remain long, livid, smooth, unsecreting, and imperfectly vitalized ; giving way under slight, or without, accidents. There is little disposition to adherence in cut parts ; hence, after amputation, healing of the stump is seldom effected by what has been called "the first intention," but is accomplished by the slow process of granulating suppuration. When bones are fractured, the deposition of ossific matter is protracted ; there is sometimes fear of false joint ; and the limb remains for a much longer time than usual, infirm or unserviceable. Hair is acted on similarly. It is often necessary to shave the head, after which it grows feebly and tardily, even when other things go on well ; and in young men, who previously had a large quantity, many weeks elapse before the scalp is moderately covered.

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SECTION IX.

Sketch of treatment—Remittent fever—Intermittent fever, simple and complicated—Dysentery—Anomalous flux—Ulcer.

LITTLE account, it may be alleged, should be taken of curative attempts which have had so little success as those referred to in the foregoing pages, at least in the first two years ; it would be better, it may be said, to allow all methods and means of combating disease, which are not distinguished by marked superiority ; and which are not fitted to act either as more correct guides or sure warnings, to sink into oblivion, than to note them in any shape. This is, no doubt, true as a general proposition, in whatever degree it may be applied to the sketch of treatment about to be rendered ; which will, at any rate, possess the merit of brevity, and will consequently make but small demand on the time and patience of those who may think it worthy of consideration. But slightness of success does not necessarily imply inefficient means or the unskilful application of them ; if the greater possible amount of good has been obtained in each, the practitioner has done his duty faithfully and well ; and he may have observed something, however little, worthy of telling to others. It may be more difficult to save one life in one degree of disease than twenty in another,

though both pass under the same name. A faithful relation of failures in any field of operations is not always uninstrucive, as from it may be learned, at least, what is not likely to avail without going over the same ground again. For these reasons, and because something respecting the action of remedies was observed, which is thought worthy of record, all account of the therapeutic agency employed in the prevalent diseases of the fleet is not omitted. It will however be short and general; and its details, as far as they go, will be applied in the order usually observed in these notes, namely, to periodic fever, flux, and ulcer.

In the worst cases of the Hong-Kong remittent, where, with extreme prostration, there was a fluttering pulse, cold clammy surface, and choleral complexion, treatment sometimes proved altogether unavailing; not appearing to modify, much less arrest the rapid progress of dissolution. In these cases, the first obvious and urgent indication was to invigorate, and thereby excite the rapidly failing, torpid powers of life. The nervous, sanguineous, secretant; and motive systems, were all suddenly, and in nearly equal degrees, though not perhaps quite simultaneously, affected so seriously, and reduced to such a state of paralytic debility, as to subvert, and all but suspend their proper functions; and what nature required of art was assistance, in the first instance, to combat and arrest this condition of extreme peril, that there might be time and means for eventual escape.

The means employed for this first vital purpose were cordials and restoratives internally, and stimulants, including the application of heat and friction, externally. If under this use, the first period of imminent danger was fairly passed, and reaction established, the methods of management, with the most prominent indications, were changed, and necessarily varied a good deal. They consisted generally in the local abstraction of blood, blistering, occasional aperients, saline effervescent draughts, and moderate doses of calomel, with, or without, most frequently with opium, and sometimes ipecacuan. It occasionally happened that reaction, after it seemed fairly set up, was suddenly suspended, and

was succeeded by danger of, if not, fatal sinking; in other cases, but this was rare, reaction became dangerously violent, calling for the prompt though generally limited use, of reductive measures. It was constantly to be recollected that the tendency of the diseased action was collapse, and that therein lay the chief danger, as all the morbid manifestations, at least considered in their prevailing aspects, as well as the post-mortem appearances, testified. Throughout, the duty of the practitioner was felt to be the careful continual watching of symptoms denoting the chief condition of danger, and combating them as best he might. In short, the practice was often one of expedient, and was based less on fixed principles than the pride of science is willing to admit.

Fortunately such extreme cases were not frequent. More generally there was less fatal prostration, greater susceptibility of, and tendency to, excitement, and consequently materials with which medical art could better deal; since its province is restrictive rather than restorative; and its uses are more clearly displayed in reducing excess, than supplying defect of power. Although in different degrees, there was, with little exception, distinctly marked remissions and exacerbatations, and often, during the latter, high vascular action; still great functional debility, and tendency to fatal sinking, existed and required to be constantly guarded against, prohibiting the free employment of reductive measures in most, their incautious use in all, cases.

General blood-letting was practised to moderate extent with advantage, in a few instances, but they were so few as to form exceptions. In a few others, its effects were not evident; in some there is little doubt that they were detrimental. The statement is made, because it is necessary to render the record faithful, believing, at the same time, that it may hereafter be useful to others following in the same track, where there are many difficulties and where danger is increased by obscurity, and because the temptation is great to bleed copiously, and far beyond the point of safety, when, as often happened here at particular periods, there is vio-

lent vascular action, a rapid bounding pulse, hot dry skin, intense thirst, headache, and delirium.

But the local abstraction of blood was resorted to in almost every instance, often more than once, and generally with evident advantage. The place whence, and quantity drawn, were determined by the character and urgency of particular affections, and by the effects of the evacuation. Leeches were commonly employed, but the scarificator and cups were sometimes preferred, especially in cases where a more sudden and certain result was desired; and one or other, according to the degree of danger apparent in particular organs and tissues, was applied to the temples, nape of the neck, epigastrium, either hypochondrium, and other parts of the abdomen.

Blistering, also, was extensively practised, in most cases, after local blood-letting; and its effects were, on the whole, highly satisfactory. The blisters, like the abstraction of blood, were applied, according to circumstances, to the neck, epigastric and hypochondriac regions, and various parts of the abdomen; most frequently when indicated in the latter region, they were made so large as to extend from the ribs to the pubes and spine; and thus consecutively, or at the same time, a large surface was vesicated. The whole head was shaved, but not blistered at the onset; there being then generally much morbid heat, restlessness, and headache or vertigo, most frequently the latter; evaporating lotions were applied, the blister being reserved for the period of apprehended torpor, though it often existed throughout, and then the vesicatory was made so large as to envelope the head like a night-cap.

Concurrently with these external applications, respecting the beneficial agency of which there is no doubt, internal treatment was assiduously employed; its value, however, either in whole or in parts, is not so certain. Considerable confidence was reposed in calomel; and it was therefore administered in small doses, frequently repeated, or in larger quantities, after longer intervals; that is, one grain every two hours, or three, four, or five grains,

two or three times in twenty-four hours. In the latter case, a small portion of opium, rarely of ipccacuan, was added. At the same time, if the stomach was tolerably tranquil, the diaphoretic mixture of the hospital,—liquor ammon. acet. with liquor. pot. tart. antimon., was given; and, when it was well borne, produced excellent effects. But, in many cases, there was so much gastric tension, epigastric tenderness, and irritability of stomach with nausea, and sometimes vomiting, as to debar its use; then saline draughts in the act of effervescence were given liberally, and almost always proved extremely grateful to the patient, allaying thirst, and otherwise alleviating sensations of distress, and this is no slight merit. When, with the symptoms just noticed, there was a fiery, dry tongue, hydrocyanic acid occasionally acted beneficially, tending to tranquillize, and thereby to restore.

After the first danger was over, when the remissions amounted nearly to intermissions, the exacerbations being less violent, the stomach retentive, and the tongue moist, disulphate of quinine was looked to as the sure means of completing the curative process; but, though it sometimes answered expectation, it more frequently disappointed. Here, as in intermittent fever, neither it, nor other form of cinchona, could in many instances be long tolerated, being speedily followed by, if it did not excite, flux.

Such were the principal means and methods employed in the remittent fever cases; it is not necessary to enter on many details. The treatment was not distinguished by unity of design and of action; it was neither founded, nor strictly conducted, on what have been rather conceitedly called physiological principles. It was not attempted by leeching of the abdomen simply, the use of bland fluids, and the prohibition of other ingesta, to cure inflammation of the lining membrane of the alimentary tube, and thus remedy the entire evil. Nor by the administration of non-purging salts, to reach and eradicate the *fons mali* in the blood. Nor, through the means best fitted to subdue inflammation of the brain, to remove symptoms which appeared to have a more extensive and complicated origin; nor, by full and frequent doses of calomel, with the

view of restoring the broken balance of the circulation—broken as it is, and essential as is its integrity,—to repair the universally injured or dislocated parts of the system, the harmonious actions of which are necessary to health; for, though the derangement of the circulation, as it always is, in such cases, was, a conspicuous and important element, it was but one of many constituting the whole disease.

Seeing things in this light, and believing that, where there was such a combination of evils, many instruments were wanted for reparation, simply, conjointly, or in succession, sometimes in appearance working differently, the means in hand were adjusted as nearly as possible to the objects desired. Wherever danger was most imminent, the greatest care was directed, through whatever organs, system of organs, or channel, it might manifest itself. It was felt that to the first essential action of the disease medical means could not reach, and that they must be limited to subsequent palpable effects, in the order of their development; and looking narrowly to their respective force and urgency. With these views, constant endeavours were made to relieve interior congestions, draw the blood accumulating dangerously at the centre to the circumference, regulate inordinate action, excite the capillary circulation, restore secretion, and so contribute to re-establish the proper motions of the whole vascular system; for, by such processes, it was believed, most effectual assistance might be given to the sanative efforts of nature; that the means employed at any rate seemed to be safe; and that always, but especially in precipitous diseases, where error is most dangerous, we should be assured that we do not injure by our interference.

Calomel was not administered in the large doses, which are often resorted to in the violent diseases of the tropics; not because its value as a remedial agent was under-rated, nor its power over the vascular tissue, particularly the capillary emunctorial portion of it lost sight of; but, because the quantities prescribed appeared better fitted for the ends aimed at, than scruple or half-drachm doses given two or three times daily. That practice, which is emphatically and literally called *throwing in* calomel, was em-

ployed by others in the same endemic ; and, although there is not a good opportunity of comparing their results, it will not be unfair to assert that neither was so successful as to be flattering to the practitioner's self-love.

It is known that, when the constitutional effects of mercury are evidenced by its specific action on the salivary glands, the patient is generally clear of the first danger ; but the question is, taking this as the test of utility, which of the methods of administration, moderate quantities frequently repeated, or larger after longer intervals, is most likely to succeed ; and the writer answers without hesitation, the former. In such large quantities, it is said to be sedative ; but are sedatives wanted here ? To this question he as unhesitatingly answers in the negative. It cannot be supposed that so active a substance remains neutral in the body ; if it does, it is at the best useless. Generally it will do either good or harm. It often fails, however administered, to act curatively ; is there then not danger, and is the danger not increased by magnitude of quantity, of its acting poisonously ? When it does not excite the capillary vessels, and alter or augment secretion, as too often happens in the precipitous affection of the tropics, is there not apprehension of its accumulating in the system, and ultimately exploding with dangerous violence ? These are questions which should be seriously considered, when in situations like this, and contending with disease like the late endemic, the practitioner, from the difficulties in his way, and the conflicting indications by which he is beset, is apt to fall into a routine method of prescribing, and conclude that there is little hope from any thing but *throwing in calomel*. There is reason to fear that the appalling collapse and rapid sinking sometimes encountered, have not been counteracted, but rather accelerated by the unguarded use of this energetic medicine.

Routinism, the besetting sin and bane of medicine, is apt to be indulged in treating tropical diseases, on account of a certain degree of uniformity in their character ; and in nothing is the tendency more displayed than in the use of mercury. Calomel, its most

favourite and, on the whole, best preparation, is a remedy which is at once possessed of great power, easy of application by the practitioner, and generally acceptable to the patient; it is, therefore, capable of effecting great good, but is also, and for the same reasons, convertible into an instrument of much mischief. Every one has observed its valuable qualities, and occasionally in circumstances which, but for its agency, appeared desperate; hence has arisen the disposition to ascribe more to it than it deserved, to carry it further in other cases than was safe, and to employ it in others again, in fact unlike, though somewhat similar on the surface, to those in which it had proved powerfully remedial. In the use of no medicine is it more necessary than in this, to determine what is desired and expected from its operation; and to be fully satisfied before prescribing it, that the condition which makes such effects desirable really exists.

Passing from remittent, the treatment of intermittent fever follows in natural order. In this form of periodic fever, the types were in most instances well-defined. There were cases of irregularity and intermixture, but generally the disease was characterised by quotidian or tertian returns, the former being most frequent; quartans did occur, but not often.

This natural division of periodic fever with regular types suggests a curious question regarding the law which determines the difference. It is probably inscrutable, and if discovered, might lead to no practical advantage; still it is interesting. When at the same time and place, arising from the same source, one person affected by a febrile paroxysm daily, another every second day, and another every third day, the phenomena when they occur, though recurring at such different periods, and differing in duration, being so precisely alike that the description of one may answer for all, it is clear that there must be a certain cause for effects so constant and striking. It is not accidental, but efficient and persistent agency which can account for them. They may be connected with difference of temperaments in the subjects, and modified affinities between them and the miasmatic poison in each case. This,

however, can only be matter of conjecture; and practical utility, not speculation, is the object of the memoir.

Few things are so certain in medicine as the absolute sanability of uncomplicated intermittent fever, by very simple means in a moderate time. There are many methods of accomplishing this end, but cinchona in some form is the instrument of power, which may be most safely trusted; and disulphate of quinine is entitled to the rank of its efficient representation, containing, as it does, the curative essence, and constituting by much the most powerful and agreeable shape in which it can be administered. This, if properly adjusted in regard to time and quantity, with very slight preparatory and auxiliary measures, will seldom fail to prevent the recurrence of the febrile paroxysm, and restore the subject to health.

The common practice in hospital, premising a warm bath, and occasionally a brisk purge, was to give two grain doses of the salt in solution, every three or four hours, beginning a short time after the patient's admission. In a few, and but a few instances, larger, and more frequently repeated doses were required; and it was sometimes, though seldom, thought beneficial to administer an increased quantity on the eve of a paroxysm.

If there were local pains, or feelings of fulness and discomfort, of such amount and persistence as to denote any thing like dangerous congestion in particular organs, topical blood-letting, by leeches or scarification, was practised,—or first the one, and then the other, was resorted to; but in few cases, was either required. With the solution of quinine, one of the aperient alterative pills of the hospital was given at bed-time, if not contraindicated by any thing in the intestinal action or discharges, viz., compound extract of colocynth one scruple, powder of ipecacuan ten grains, mafs of blue pill twelve grains, extract of taraxacum fifteen grains, divided into twelve pills.

By these few and simple means, sedulously applied, with regulated diet, success was sure, and generally speedy; even when the disease had been of many weeks' duration; when the subjects

were much weakened, emaciated, and dejected; the complexion being sallow, the lips pale, the eyes sunk and muddy, and the entire frame worn down, by recurrence of febrile attacks, impaired digestion, and sleepless nights. The last result of the disease—sleepless nights—was severely felt, and much dwelt on by many of the patients. They complained of it more than the actual paroxysm, feeling it to be their greatest source of suffering, and considering it the principal cause of their wasting. Cure was not considered complete till some weeks had elapsed after the last accession of fever, however slight it may have been. It is not known how every man has gone on since his discharge; but, apt as the disease is to recur, it has not been ascertained that any of them have been affected since.

It was far otherwise when the fever, as happened in most instances, was complicated with other forms of disease, especially with the flux, so often adverted to in preceding pages. In such cases, the difficulties found in the way of satisfactory treatment were great, if not insuperable. It generally happened that the distinctly febrile part of the disease—the ague fit—was more or less masked by the intestinal affection. Sometimes it was, for a while, so much disguised as to require close observation and questioning to detect its existence; and when its recurrence was evident, there was often regularity in the time of accession, as well as in the duration, and development of the different parts of the paroxysm. Rigor was seldom well-marked; sometimes the hot stage was wanting, the paroxysm consisting chiefly in profuse sweat, with sensations of chilliness rather than heat; instead of being ushered in by coldness and shaking, the invasion was occasionally characterised by numbness or total temporary suspension of sensibility in the lower extremities; and there were other anomalies and discrepancies of other kinds in the febrile paroxysm, difficult to describe, and unnecessary to detail, which were yet of such a nature as to leave no doubt of their being products of the miasmatic poison and integral parts of the periodic fever.

All combinations of morbid actions are necessarily less suscep-

tible of cure than a simple primary disease; and the combination in question was found, as it ever will be, peculiarly intractable. The appropriate and potent remedy for the fever, which, though not always unequivocally manifested, was so constantly in the system, exhausting its powers, inducing dropsy and other effects of debility, could seldom be given beneficially, or even without marked injury, on account of the flux. Neither quinine nor cinchona, in any form, could be borne. Even simple bitter infusions, with or without aromatics, were seldom long tolerated; and it frequently happened that, after the bowel affection was arrested, when such medicines were employed with the view of strengthening the alimentary organs, the flux, with all its miseries, returned in a day or two, the patient constantly asserting that the draughts disagreed with him from the first.

In this dilemma, being satisfied that to check the headlong course of disease, and give the patient a chance, it was necessary to eradicate the cause of periodic fever from his system, and at the same time, being deprived of the paramount remedy by its injurious agency in the intestinal affection, arsenic presented itself, as the next in order of efficiency in the list of antiperiodic medicines. How far it also might act unfavourably on the irritable intestines must be determined by trial; and the trial on the whole answered expectation. In many instances, it failed to subdue the disease or lessen its violence, but in others, which, without its intervention, seemed hopeless, its remedial efficacy was unquestionable. When there was neither destructive organic lesions nor helpless exhaustion, conditions alike irremediable by any means, its power over the periodic paroxysm soon became apparent; and, when fully established, generally continued till their recurrence was finally prevented, and the febrile part of the combined affection was consequently cured. While acting thus favourably on the fever, it did not, as was apprehended, aggravate the flux; nay, it seemed, though the appearance was not so clear as to warrant a positive conclusion, to produce a beneficial effect on it also. At any rate, while it did not injure, it did not prevent the use of such means as might prove directly curative in the alvine affection.

The ordinary method of employing arsenic was, in the first instance, to give three or four minims of the solution of the arsenite of potash, in camphorated mixture, or infusion of diosma, two or three times daily. After a time, the latter vehicle was preferred, because, as will be stated in the sequel, it appeared to act curatively in some forms of the flux. In some cases, it was found necessary to increase the quantity of the arsenical solution, and administer it more frequently, but the dose first prescribed was for the most part sufficient.

It is doubtful whether this method of treating the fever was equally effectual as that by quinine. Some question remains as to whether it possessed the same power of eradicating its cause, and preventing returns of the disease. But one thing is certain, viz., that it could be employed, and in some cases with excellent effect, when the more popular, and perhaps more powerful remedy, in ordinary circumstances, could not; and that, in these, with the means at-hand, it appeared to be the only available resource.

The treatment of dysentery, even when original and uncombined, is not so simple and certain as that of pure intermittent fever; but if it be primary and uncomplicated, the subject possessing unbroken organization and moderate strength, a large measure of success will result from the prompt application of judicious means, although the impression be severe and the symptoms violent. When there are incessant irresistible calls to discharge the contents of the bowels, the dejections consisting of various morbid secretions and blood, and nothing else, accompanied by violent straining, preceded by severe tormina and succeeded by distressing tenesmus, which has not entirely ceased, till it is renewed and aggravated by other efforts at stool; when the pulse is rapid, the skin hot and dry, the tongue furred, and the thirst insatiable, with nausea or vomiting; when the abdomen is tender and intolerant of pressure, the urine being scanty, high-coloured, and often voided with difficulty; when such is the state of the patient, and the representation may be taken as a fair picture of the disease, in its acute form, when fairly established, especially within or near the

tropics, it is clear that he is in great danger, and that, if not rescued by some means, he must soon sink, or pass into the protracted complicated miseries of chronic dysentery. Fortunately, there are, in a great majority of instances, adequate means for bringing him out of such a state safely and quickly, but much, almost every thing indeed which makes the difference between failure and success, depends on the measure and manner of their employment. It is believed that the principles, at least, which ought to regulate their use, will be found intelligibly laid down in the few following sentences.

To subdue violent action in the intestines, especially in their lining surface, is evidently the first and paramount object; and to obtain it, abstraction of blood claims the first place in the order of time, as well as of efficacy, among the means to be employed. In this, as in every other affection requiring it, the only just measure of remedial quantity must be determined by the effect of the evacuation in each case. If the patient be in the sitting posture, which is best, the opening in the vein being of moderate size, blood should be allowed to flow to the extent of from twenty-five to thirty ounces, unless faintness occur, which will then be the limit. It is of much importance to push general blood-letting to the furthest remedial point in the first instance, for what it is capable of doing it accomplishes most perfectly at the onset, and it cannot often be repeated beneficially or even safely.

As soon as may be after the blood-letting, should no faintness have been induced, or if there have, when it has ceased, the patient is to be placed in a warm, or rather hot bath, for its temperature should be as high as 105. In this, as in blood-letting, effect is principally to be regarded; and generally it is right and desirable to continue its action till faintness or a copious rush of sweat, or both are induced, unless dangerous determination to the brain supervene.

Within a few hours—six will be sufficient to show the efficacy of what has been done—if there be not the most unequivocal yielding of all the urgent symptoms, recourse must be had to local blood-

letting. From fifteen to twenty-five leeches should be applied to the abdomen, and ten or twelve round the margin of the anus; a moderate quantity may often be drawn from the margin of the false ribs, about the same time, by the eupping instruments. On the completion of these measures, the bath may again be employed; after which, the patient being dried, and speedily carried to bed between blankets, the abdomen should be covered with a light warm poultice. Twelve hours hence, or twenty-four hours after admission, if there be any doubt as to the disease being mastered, and yielding rapidly, a large blister must be laid on the abdomen, not a patch covering a hand-breadth, but a sheet extending from the pit of the stomach to the pubes, and from one iliac hollow to the other. These, by way of distinction, though not very correctly, constitute what may be called the external measures.

While they are assiduously applied, the internal remedies must be administered not less diligently and unflinchingly. Their essential ingredients are calomel and opium, to which, in most instances, ipecacuan or antimony will prove an useful addition. Different cases will call for some modification of the entire quantities to be prescribed in a given time, the proportions of each, and the frequency with which they ought to be repeated. Every man must determine such things for himself, and it would be a frivolous waste of time to attempt any particular directions respecting them; but in most cases, it will be sufficient and best to give four grains of calomel, one grain and a half of crude opium, and the same quantity of ipecacuan, every third hour; and to give nothing else in the shape of medicine, but trust the conduct of the case to these pills, and the external means enumerated above.

Little doubt exists as to the efficacy of mercury, especially in the form of calomel, in this disease; but there is great discrepancy of opinion regarding the best manner of administering it, in respect of quantity and time, as well as to its being given alone or in combination with other medicines. One writer recommends small doses, alone or combined, frequently repeated, another larger doses at longer intervals, and another again a larger quan-

tity a scruple or more, with still longer intermissions. Almost all consider more or less of aperient medicine highly useful, if not necessary. Some believe calomel to possess a kind of specific power over the disease, and that nothing more is required than to give it abundantly, or if any thing else is desirable, it is to clear the bowels efficiently. There is no doubt that the same end may be obtained by very different means, though not with equal ease and certainty. It scarcely ever happens, where there are various roads to a place, that any two of them are alike short and safe; and it is believed that the combination here recommended is, at least, one of the best. Not a doubt is felt that the opium which it contains, acts an important part in its curative agency; nor that the ipecacuan, unless where there is much gastric irritability, adds to its power.

By these means, nine cases in ten of the form of dysentery under consideration, at the stages indicated, will be successfully treated, the subject being restored to health in a moderate time.

It will be observed with surprise, if not disapprobation, by some, that no mention is made of purgatives in the list of remedies proposed above. On this point, the writer is at issue with men who are considered sound teachers. He is sorry for it, as he differs diffidently from some of those who have published their opinions, and whose opinions are generally received as authority on the subject. Still being satisfied, after much observation and thought, that he is right, he cannot hesitate to avow the deep-rooted conviction which has been forced on him.

In some cases of mere irritative flux, particularly in the diarrhœa erapulosa, of authors, evacuants are the appropriate medicines, and an active purge or two will effect a cure. When, as sometimes happens, after continued constipation, there are natural attempts, by augmented secretion and muscular effort, to throw off the source of disturbance, symptoms simulating those of dysentery are sometimes set up, such as frequent intestinal discharges, containing mucus and blood, with tormina and tenesmus; and in such cases, also, efficient aperients are not only safe but neces-

sary. In acute idiopathic dysentery, however, every thing which shall increase secretion, already excessive, and rouse to stronger action the muscular powers employed in expulsive efforts, should be carefully avoided. To tranquillize the highly-excited interior surface of the intestines, thereby allaying local pain and constitutional tumult, ought to be the first aim of the practitioner; till that is obtained, nothing is done for the relief and safety of the patient. When the mucous surface is in such a state of sensibility, the vascularity approaching, or amounting to inflammation; and when the intolerance is so exquisite that a glass of bland fluid produces increase of suffering, augmented tormina, and more urgent calls for the bed-pan,—what is to be expected from a cathartic dose of castor-oil, or of purging salts? It will be answered, such medicines are prescribed with the important views of clearing the bowels of retained feces, in the first instance, and afterwards of improving the secretions, and carrying off colluvies which, being retained, prove a source of irritation. But the reply is not satisfactory, for the following reasons.

Free diarrhœal purging takes place almost invariably at the onset, and thoroughly empties the bowels before medical assistance is sought; so that scybala and other forms of peccant feces, for which such diligent search is made, can no where be found. Then, with respect to improving secretions by cathartics, it is sufficient to say that they do not produce the desired change. Augmented quantity, and increase of the most distressing symptoms follow their use so constantly that, if the result ever be corrective and diminishing, it is so rare as to form an exception to the ordinary effects.

Retained secretions, like pent-up feces, have a larger place in the imagination of the practitioner than the person of the patient. When there are such strong and frequent expulsive efforts, accumulation, without some restraining obstacle, cannot be conceived; and the permanent spasm of Cullen, which was once brought to explain many things, real and fancied, obtains little credence now. But, if it could be shown that the unhealthy

secrections do sometimes linger in the bowels, even with incessant discharge, it does not follow that instant recourse should be had to purgatives, to get rid of them. It ought first to be considered whether the means used for their expulsion are not likely to prove more injurious than the secrections themselves; whether, in addition to increasing the violence of symptoms, they do not at the same time augment the evil—the morbid secrections—sought to be discharged.

In some instances, during the decline of the disease, more especially when there is danger of its assuming the chronic form, aperients are not only safe but useful; they should always, however, be directed with much nicety, for error in this respect may reproduce it in all its force, and with lessened chances of successful treatment, when it has been so far skilfully resisted. If after its cessation, the bowels should fall into a torpid state, they must be assisted as in other cases, but with this caution in mind, that the patient has lately suffered from dysentery, and that nothing which is prescribed is likely to re-excite it.

While the disease is in full force, the intestinal excitement being intense, with incessant dejections, consisting of blood and mucus in many forms, violent incontrollable straining, producing frequently prolapsus ani and severe abdominal pain, it appears as reasonable to prescribe purgatives as it would be to administer emetics in gastritis or cantharides in inflammation of the bladder. But since precepts in the practice of medicine cannot be safely deduced from analogies; and as it is necessary to determine what is right in every form of disease on its merits, the writer may be permitted to sketch the disease as experienced by himself, being the true type of a multitude of other cases with which he has had to deal. We are diligent students of disease in our own bodies, carefully noting its action, management, and results, whether we may be capable or not of turning the investigation to the best account; the following short outline claims, at any rate, the character of fidelity.

The disease, after a day or two of anorexia and intestinal dis-

order, accompanied by frequent liquid feculent stools, acquired its full dysenteric force in the harbour of Nassau. The patient was young and gladly availed himself of the aid of a senior professional friend, who kindly prescribed for him, but who had fixed notions respecting the right method of treatment, and insisted, fairly enough perhaps, on either having the entire direction of the case, or abandoning it altogether. This was felt to be rather a severe resolution, but under the depressing, and in some measure incapacitating influence of the disease, the method insisted on was followed. The symptoms ran high, corresponding closely with those enumerated above as characterising acute idiopathic dysentery; and the treatment was sufficiently simple, consisting of six-grain doses of calomel every fourth hour, and daily draughts of Epsom salts or castor oil.

The misery of that week can neither be forgotten nor described, especially the amount of aggravation constantly occasioned by the purgatives. After each draught, the thirst, tormina, tenesmus, and mucosanguineous dejections, were increased in force and frequency; but the offending feculent matters with which such war was waged, were never expelled, for the sufficient reason, as the patient ventured to tell the doctor, that they did not exist. And the only change which the purgatives worked on the secretions was increase of quantity,—more frequent and painful discharges.

While this was going on, a very simple process of reasoning led to the conclusion, which instinct strongly confirmed, that much benefit might be derived from blood-letting. It was felt, that by speedily unloading the vessels, and relieving the bursting vascularity of the mucous surface, the fire which was burning within, literally consuming the vitals, might be most effectually quenched. But the prescriber would listen to no such suggestions; he was satisfied with the efficacy of his own plan, considered every thing beyond it useless or hurtful, and looked upon the idea of the patient as the product of a visionary, perhaps diseased, disordered brain. Fortunately the calomel, unaided, and

despite the purgatives, subdued the disease. Ptyalism set in; and the symptoms began to yield, and finally disappeared. But, though the method adopted was eventually successful, it does not follow that it was the best, or that it was not, in many points, radically wrong. Had blood-letting and the hot bath been employed, purgatives omitted, and opium with ipecacuan added to the calomel, there is no question that much suffering and danger would have been avoided. In three subsequent attacks, of at least equal violence at the onset, these measures were resorted to, and their curative agency was absolute and speedy. On each occasion, the disease was completely conquered in forty-eight hours. This is impressive, and as far as it goes, certain instruction; and the writer has no hesitation in affirming that what he has felt in his own person, has been amply established by all that he has witnessed in others.

It is not thought necessary to discuss the question of the manner in which these remedies effect the cure of dysentery, or attempt to trace the process by which diseased structure and depraved action pass into organic integrity, and the healthy performance of function, as such discussion is seldom so conclusive as to be satisfactory, and as the object here is to record what has been observed of diseases and their effects, and the best method of managing them. But it may be stated in general terms that the course of treatment recommended above will be found the most effectual in the allied affections of other organs and tissues. What is meant by allied affections is that other parts of the body are in such a state of vascular derangement, inflammatory or congestive, as to threaten rupture of vessels, abscess, ulcer, gangrene, or other form of disorganization. In all such cases, wherever the seat of disease may be, it is believed that the practice found so excellent in acute idiopathic dysentery, will prove the best which can be adopted, with such modification in detail, as the position and force of each case may require. It is doubtful whether calomel makes any exception to the rule proposed, except in so far as it is applied more immediately to the affected parts, a quality which it shares however with other internal remedies. It is not prescribed

because it is supposed to possess any specific power over the intestinal affection, or that it exercises any peculiar influence on the liver in dysentery. That that organ becomes functionally disordered in the course of the disease in common with many other organs, and that its offices are consequently imperfect or improperly performed, there is little doubt ; but there is no real evidence that it acts the efficient part often assigned to it in the formation of the morbid catenation constituting dysentery, whether acute or chronic. It is certain that in an immense majority of cases, no lesion of the liver could be detected on post-mortem examination.

Among the questions raised respecting the use of calomel in dysentery, one has been, whether it is best to aim at the production of ptyalism, or to guard as much as possible against that result, in order to obtain its highest healing effects. One man maintains that nothing is accomplished till the salivary glands are much excited ; another argues that that issue is to be deprecated, and, if possible, avoided, inasmuch as with it the sanatory influence of the drug ceases, or, which is still worse, that it then becomes absolutely injurious, augmenting the diseased actions which, up to that point, it had been potently subduing.

Now, this seems a very slender subject for dispute. It is strange that one effect, which is, at the same time, a sure indication of the medicine having thoroughly entered the system, should be made a matter of such importance. In most cases, some degree of salivation, or, at least, tumidity, of the gums and salivating glands, will take place before the disease yields ; but in many others no such manifestation of its remedial action is either made or required ; and in some, it is well known, this result cannot be obtained. In this disease, as well as every other for which it is ordered, it is surely enough that the morbid condition is removed, whether one of its ordinary, certainly not curative, effects, be realised or not. To persevere in seeking this sign, and pouring in medicine to bring it out, after the cessation of disease, is to run in pursuit of a shadow when fully possessed of the substance. It would certainly be well to avoid salivation, if we could always

obtain the beneficial effects of mercury without it; for there is no doubt that when it becomes profuse, with ulceration or sloughing of the gums, checks, &c., that it is a great evil, and becomes occasionally, when there is much reduction of strength, dangerous, or even proves fatal. But, unfortunately, the extent to which it may proceed cannot be foreseen; and in a state of great distress and danger, while life is in the balance, a sore mouth, or even the mischief of severe ptyalism, must not be much considered. In short, the remedial agency of the drug should be steadily looked to, and the contingent salivation neither sedulously sought nor anxiously apprehended.

But it is not always remedial. It does happen, though rarely, in this form of dysentery, that the system is not only insusceptible of its healing, but intolerant of, its action; and it cannot be doubted that, in such cases, it should be at once laid aside. The remark applies especially to China, the incompatibility being most conspicuous there. As in the remittent fever, much must be looked for from calomel—if not of good, of mischief. It was observed in some cases, that under its free use there was no mitigation, but rather aggravation of symptoms; and when this had proceeded for a time, a new and unsuspected aspect of danger was apt to present itself, characterised by a rapid feeble pulse, cool clammy surface, shrunk features, and jactitation—in a word, by a degree of collapse, which threatened fatal sinking. When this occurred, to whatever amount, it was clear that calomel must be not only suspended, but abandoned. It was not so clear what should be done. Most of the few men who fell into this state died in a short time, but some, under the persevering use of cordials and restoratives, rallied, and ultimately, by other means, did well.

When the dysenteric symptoms are less urgent than those enumerated above, either at the onset, or after the violence of an acute attack has been subdued; when there is less febrile disturbance, and less intestinal irritation, the dejections being less frequent, containing a smaller proportion of blood, with more moderate tormina and tenesmus, although the same general plan of treat-

ment should be pursued, it need not, cannot properly, be pushed so energetically. Local blood-letting will suffice, and the use of the lancet will seldom be necessary or right. Leeches to the abdomen and anus, however, are of so much value, that they should not, except in the slightest cases, be omitted. Instead of giving the bolus of calomel, opium, and ipecacuan, every third or fourth hour, it will be sufficient to give it every twelfth hour. Draughts, containing magnesia or prepared chalk, and aromatic confection, with tincture of opium, and small quantities of rhubarb, will occasionally prove useful auxiliaries; but simple astringents can seldom, if ever, be employed with benefit. Efficient aid, especially when the skin is dry and harsh, may be obtained from the warm bath; not the hot, as in the more violent form of the disease. Rubefacients, or a blister to the abdomen, in protracted cases, may be resorted to with advantage; and there are instances, where the disease is seated chiefly in the rectum, in which astringent injections, such as the following—sulph. zinei gr. x. aqua ℥v.; tinct. opii ℥ss.—produce highly beneficial effects, allaying irritation, and lessening the number of unhealthy discharges.

It is scarcely necessary to add that, in such cases, the chronic form of the disease having set in, or the symptoms showing strong tendency to it, the ingesta should be strictly regulated and restricted. In acute attacks, no caution on this head is required, as there is no desire for food; but in chronic affections there is often considerable appetite, sometimes morbid craving for solid aliment. This must be rigidly resisted, as loading the stomach in such cases is absolutely poisonous; and the sustenance provided should be of the lightest and least irritating kind.

In this form of the disease, the dangerous effects of purgative medicines need not be so much apprehended as in the acute; but even in it they should be resorted to, when thought necessary, with care and judgment. All those of a violent nature should be shunned, and draughts, containing magnesia and rhubarb, or castor oil, with a few drops of tincture of opium, employed.

Opinions similar to these, respecting dysentery, were expressed

by the writer, in an inaugural essay, published twenty years ago ; and although he has seen much of the disease since, and suffered severely from it, nothing has occurred to make him question the soundness of the views promulgated on that occasion.

But the flux which has prevailed so extensively, and proved so intractable on the coast of China, has not often been true dysentery, in either its acute or chronic form ; nor was it diarrhœa. It was seldom, at least as seen in hospital, a primary idiopathic affection, being, in a great majority of instances, associated with periodic fever, secondary to, alternating ; or co-existing with it ; arising, as has been before stated, from the same cause, making part, and being a modification of the periodic affection, though not observing regular periods, rather than constituting an independent disease. It was also associated with ulcer, especially in the north, preceding, co-existent, or succeeding ; but the intestinal affection was seldom urgent, while the external ulcerative was active : generally, as one rose in force, the other fell. Belief in the cognate nature of the three forms of diseased action, as well as of the dependence of each on miasmatic exhalations, having been previously expressed, the subject will not be dwelt on at present, more especially as abstracts of cases have been given in former pages, to illustrate the doctrine. There is little occasion to add, that all the cases of ulcer treated in hospital did not belong to the miasmatic family ; that some had a different source, common or specific. But to proceed to the object immediately in view, the treatment of the anomalous flux.

The general nature and varying character of the discharges have been sketched in a preceding place, and need not be repeated ; nor is it necessary to reiterate the account of the deplorable condition in which many patients were received, and enlarge the deplorable picture presented by the hospital, when first opened for the sick from the Yang-tse-Kiang. In a plurality of cases, as has also been related, there was such extreme prostration, with organic lesion, as to leave room for palliative measures only ; and nothing remained but the melancholy duty of attempting the alleviation of

urgent distress, and sustaining, for a time, the rapidly sinking powers of life. The attempt, limited and humble as it was, led to little, and the means employed, having been named in a general way before, may be passed without specification, or further notice.

But all cases were, of course, not equally hopeless. Where the system was less deeply poisoned, the prostration being less extreme, and the structural change in the intestines, if very trifling, or, at least, short of actual disorganization, it is satisfactory to know that more was sometimes accomplished than was looked for; and that the subject either recovered on the spot, or so far improved as to permit of his being sent to England, with a reasonable hope of ultimate restoration. It would be tedious and uninteresting to enumerate all the means resorted to, and the various phases of the disease in which they were adopted; only such remedial measures as had notable and pretty constant effects will be specified.

When, in such cases, the alvine dejections consisted chiefly of mucus in any form and blood, accompanied by tormina and tenesmus, whatever the other predominant symptoms might be, the most efficient single remedy was a combination of calomel, opium, and ipecacuan, similar to that used in idiopathic dysentery, but in greatly diminished quantities, and less frequently repeated; for here there was such reduction of constitutional vigour, and so peculiar a condition of the intestinal tissue, as to render the system intolerant of all strong measures; and it was often difficult to determine how far even a remedy should be carried, in order to secure the greatest amount of its healing influence, and avoid, if pushed farther, the detrimental effects which ensued. Here, salivation was guarded against, not because its establishment interfered with its saturating action, but because the resulting irritation and exhaustion could ill be sustained, and, if excessive, become highly injurious. In such cases, it cannot be questioned that suddenly saturating the system with mercury has been too indiscriminately attempted and accomplished; and no doubt remains in the writer's mind, that the agent which, under proper

management, would have been powerful to save, has, injudiciously administered, become the immediate means of destroying life. This is a strong, and may be thought an uncharitable, or unwarranted declaration; but its truth is felt strongly, and it is, therefore, felt that it would be a dereliction of duty to withhold it, or express it in ambiguous terms.

It would be idle to propose forms and rules suited to all cases, as symptoms will frequently arise calling for modification in both the quantities and proportions of the combination alluded to; but a pill, containing of calomel, opium, and ipecacuan, each one grain, evening and morning, will, in a majority of instances, be found the best, judging from experience here.

Advantage was also often obtained from occasional draughts, containing five grains of rhubarb, eight grains of magnesia, and five drops of laudanum. In many cases, when the skin was harsh and dry, ten grains of the compound ipecacuan powder, or from two to three grains of simple ipecacuan, acted beneficially. And when there was much gastric irritability, common effervescing draughts, with the alkali somewhat in excess, and a few minims of tincture of opium, proved at once grateful and beneficial, lessening thirst and nausea, allaying pain, and, for a time at least, diminishing the number of dejections. In such circumstances, hydrocyanic acid was also given, with occasional marked advantage.

In a few cases where the dejections consisted chiefly of blood, acetate of lead produced good effects; and to such its beneficial influence was confined. Tried in others, it totally failed, or did mischief.

A few leeches to tender parts of the abdomen, or round the anus, especially the latter, when there was much tenesmus, scarcely ever failed of beneficial effect, relieving or removing that painful sensation, and contributing greatly to the patient's comfort.

At the same time, the abdomen was fomented. Blisters were applied; and occasionally a particular rubefacient was employed with better effect. An ointment, consisting of equal parts of

mercurial and iodine ointment, with a small portion of cantharides plaster, was rubbed carefully over the abdomen, to the extent of a drachm daily ; after which, a flannel roller was applied. In this way, the irritation of a large blistered surface was avoided—no light consideration, when there was tendency to sinking ; and the derivative action thus established, without considering any other, was not only more steady and constant, but also more effectual on the whole. If vesication, in a slight degree, took place, the application was suspended, to be resumed if required.

These were the means, of which it can be affirmed that they acted, in various degrees, in different cases, remedially, though in many not absolutely, and, in the end, curatively ; and it may not be out of place to mention others often resorted to in flux, which produced here either very transient good, doubtful or detrimental effects. Such were cretaceous compounds, and pure astringents, including sulphate of zinc. The last, which has been much lauded as a remedy for chronic flux, did not maintain its reputation in any form of the disease. Neither it, nor any other astringent in common use, had the power of restraining the discharges even temporarily, in most cases ; and when that effect was produced for a little, it was constantly accompanied by more severe tormina, and soon followed by increased frequency of stools.

In searching for something which might promise more successful operation, where the ordinary means so often either failed altogether, or accomplished but transient good, nitrate of silver occurred, as an instrument of power, which might, perhaps, be employed beneficially ; and no hesitation was felt about the propriety of deviating from the common course, and resorting to a reasonable experiment, particularly when there was little doubt of the impending danger, if not existence, of ulceration. It was accordingly given in small quantity, apparently with benefit at first, and, therefore, with the hope that it would prove valuable in such cases. The stools became less frequent, there was certainly no increase, if not diminution of pain, and there were diffusive sensations of comfort. The hope thus raised was not, however,

confirmed. In a few days, the improvement was evidently not progressive ; in a few days more, matters became worse ; and the disease too often held its wasting course, till the patient sank, utterly exhausted. On post-mortem examination, such extensive intestinal disorganization, partly of long standing, presented itself, as to show that nothing short of miracle would have availed. Whether in cases of shorter duration, and with less structural lesion, nitrate of silver might be added to the list of remedies, has not been determined ; but the impression on the writer's mind, arising from what he has observed, is against it.

In the form of chronic flux just considered, besides prevalence of muco-sanguineous dejections, tormina, and tenesmus, there was mostly rapidity of pulse, thirst, a dry, smooth, shining, vermilion-coloured tongue, and anorexia. There was another, marked by very different symptoms, which, though less distressing to the patient, and slower in progress, was at least equally perplexing and intractable. In it there was little, if any, abdominal pain, or straining at stool. The pulse was feeble and slow, sometimes not more than fifty, or even forty, in a minute. There was little, if any, thirst. The tongue was moist and smooth, generally whitish, but not furred, or white, with streaks of pale pink ; and the desire for solid food was often keen, sometimes excessive. The alvine dejections were numerous, and of all conceivable kinds, though generally there was predominance of the character called lienteric, consisting of a large quantity of gruel-like fluid, and undigested portions of aliment. Vegetables were discharged unaltered ; and animal food often appeared in the stools, unchanged, or very little affected by its passage through the alimentary apparatus. Where the first act of the digestive process was so imperfectly performed, there could be but little nutritive assimilation ; and wasting, with reduction of organic and vital power, must ensue, leading, among other effects of debility, to the tardy feeble action of the heart just noticed.

Those two forms of chronic flux, having certain features of dysentery and diarrhœa respectively, may be considered the two-

fold type of the disease in China, so far as it admits of classification. Sometimes one succeeded the other; sometimes they ran their course independently. There were frequently additional, privative, or modified symptoms, in each; and sometimes there was a certain degree of blending of both. But any attempt to delineate all the varieties which appeared would prove tedious, and would, after all, fail to represent them perfectly.

In the last form of the disease, where there was neither pain nor irritation, but constant wasting discharges from the bowels, with such striking signs of debility, it might be supposed that tonic, bitter, and astringent medicines, especially those that combine bitter and astringent qualities, would have proved highly beneficial, if not always curative. They failed, however, to accomplish much. Though tried in many shapes and modifications, they either were inefficient, did positive harm, or, at best, produced very slight and transient benefit. Even mercury, which is so eminently remedial in many forms of intestinal disease, had little permanent power over this. Given in any quantity, it was evidently injurious, increasing the quantity, but not improving the character of the discharges. The disease, in many points, closely corresponded with one which prevailed in the Millbank Penitentiary some years ago, of which an excellent account has been given by Dr. Latham. There, mercury was resorted to almost in despair, the disease having set at defiance every effort to stay its career; and, eventually, calomel in full doses was the means of saving life, when all others had been found unavailing. Here it had no such signal success; and the two cases, with many others, show how slight, or rather how difficult to comprehend, a difference in pathological condition, shall render a therapeutical substance efficient or otherwise.

Still, calomel in minute doses, alone, or in combination, most frequently the latter, was often found useful for a time. The following, or a very similar compound, was considered the best:—
Chlorid. hydrarg. gr. iv.; pulv. ipecac. gr. ix.; opii. gr. xij.;
M. divide in pil. xij.—one at bed-time. Occasionally, though seldom, especially when the earthy complexion was conspicuous,

a single grain of calomel was substituted. In few cases could either be continued long with advantage. When given up, compound powder of ipecacuan; or the latter, unmixed, was generally the evening dose. Opium alone had little effect. Small quantities of rhubarb, with or without an alkali, and a few drops of laudanum, were administered in various vehicles, such as infusion of cascarilla, cinchona, or diosma.

The last became the favourite, and was employed as long as it could be procured, because it was considered to possess remedial powers of its own. It was also, therefore, given frequently alone, in two-ounce doses, two or three times daily; and occasionally, when there was coexistence of periodic fever, with tendency to, or development of, dropsical effusion, it was made the vehicle of the arsenical solution. In such cases, it did good service.

There is no desire to overrate its value, nor to represent it as possessing vast power even in this form of disease. Exaggerated commendation of new medicines, or of new or rare applications of them, has proved a great hindrance to the advance of therapeutical knowledge; as it has led to unreasonable expectations, then to disappointment, and, finally, to the abandonment of agents, which would have made efficient additions to the list of remedies, if they had not in the first instance been praised beyond their worth, nor afterwards employed except in affections like those for which they were originally recommended. Buchu will certainly not cure, or tend to cure, many cases and forms of chronic flux; but in those which have been specified, and, it is thought, with sufficient precision, it will act beneficially, for the most part, and will often with the co-operation of other means, lead, though slowly, to health, when other courses of treatment would fail. This, which is sufficient credit, is claimed for it, but nothing more.

One of the most useful auxiliaries is the sulphate of zinc injection, recommended in another form of flux, in a former note. How it acted here, is not easy to understand, nor is it important to know; its remedial power, which is the point of interest, is certain.

Blisters were occasionally applied to the abdomen, or, and as was thought more advantageously, the ointment of mercury, iodine, and cantharides, recommended above, under the same regulations, with the flannel roller, was used instead. Diet was, at the same time, strictly regulated. It was difficult to persuade a man, with a keen appetite, frequent purging, and failing strength, that a scanty supply of food would be anything but detrimental to him; and surreptitious supplies were sometimes obtained, in spite of all precautions. Moderate quantities of farinaceous aliment were alone compatible with a curative process. Anything like repletion was poisonous; and it often happened, after convalescence was fairly begun, that indulgence occasioned recurrence of all the symptoms.

To the morbid conditions, the treatment of which has been sketched, whether consisting in one form or another of miasmal disease, dropsical effusion into many tissues and cavities, as might have been expected, often succeeded, but seldom directly, and by pressure, occasioned distress, or even much inconvenience. In two instances only was tapping required. In all such cases, the principal object aimed at was remedy of the condition on which the dropsy depended, comparatively little attention being paid to the effusive effect. That condition consisted almost universally in organic weakness; organic obstructions, considering the nature of the primary disease; and its powers, real and imputed, of producing structural lesion in other places, were singularly rare. Little was expected from diuretics, and they accomplished even less than was looked for. To specify the various means resorted to in the dropsical complications, would be little more than a repetition of the measures used in periodic fever and flux. Irregular ague, frequent purging, ascites, anasarca, and extreme debility, co-existent, presented as hopeless a subject for medical management as can well be conceived. Of such cases, there were many, most of which proved altogether intractable; but, in some of them, decided advantage, more certainly than from anything else, was derived from the combination of arsenic and buchu.

In a few cases where effusion was confined to the abdomen, anasarca having ceased, and other cavities being clear, friction with the compound ointment, already twice referred to, was followed by marked improvement. Under its use, tumidity subsided, sometimes permanently. Whatever may be thought of the physiological fitness of the application in this or the other affections, no doubt is entertained of its practical utility.

After the cessation of all notable disease, and the apparent resumption of restorative action, return to a positive healthy state was uncertain, and often so slow, when not entirely arrested, as to make its progress doubtful. Although morbid processes were stopped, actively healthy processes were not established. There was inaptitude, so to speak, in the organs, to re-commence the performance of their various functions correctly and vigorously. Their harmonious co-operation had been so long suspended, and some of them so much injured, as to render their re-adjustment difficult, and throw great obstacles in the way of forming anew the healthful habits which had been broken. When men declared themselves quite well; when the appetite was sharp, and full diet allowed; when there was no intestinal irritation, the dejections being feculent, and not too numerous; when there was sound sleep, and no constitutional disturbance; it often happened that there was little advance in convalescence. The subjects did not acquire flesh or strength; their complexions continued sallow, and their lips pale; and there was sometimes œdema about the face, and disposition to dropsy elsewhere. In many of these cases, it was observed, that though there was nothing faulty in the number or consistence of the dejections, they were more copious than common, were wrong in colour, and had more than a healthy proportion to the ingesta; it therefore appeared that there was defect in some essential part of the assimilating process. In this state of things, advantage was derived from preparations of iron. That preferred was the tincture of the sesqui-chloride, as the least likely to disturb the bowels, in full doses. It was generally borne well; and under its use, the complexion improved, and strength was gained.

The third and last general form of diseased action to be noticed in respect of treatment, is the ulcerative ; from which, at one time, there was much suffering, and to which there is evidently considerable proneness, from a diffusive agency on these shores, independently of local causes derived from the interior of particular ships, co-operating with, and aggravating it. It has already been stated that the ulcers treated in hospital were often closely associated with periodic fever, succeeding to, or alternating with, it : the belief that, in a plurality of cases, they were caused by the same morbid influence, has also been expressed, and need not be repeated. But it is known that sloughing ulcer sometimes springs up on board ship, having the same general character, when far from the land, and when terrestrial exhalations can have no effect. In such cases, it is probable—for the cause of this, as of other disease generated in ships, is involved in much obscurity—that the source of the ulcer is a peculiar miasm, evolved from the inferior parts of vessels, similar to, but not identical with, the miasm of marsh and marshy land, being so modified by additional or privative properties, as to endow it with its specific morbid power. This, however, is a subject which, though highly interesting, could not be argued profitably, perhaps, anywhere, and would be out of place, except as eliciting a passing remark, in cursory and detached notices like these. The present object is to give a summary of the means resorted to in sloughing ulcer, especially that by free incision. The practice, founded on former observation, was alluded to in an early note with commendation ; but as it has been extensively employed since,—as enlarged experience is the only satisfactory test of efficacy, and as unequivocal success may be thought necessary to justify a proceeding which is not free from the appearance of severity, if not of unfitness, some further account of it will be rendered.

In a great majority of cases, the sloughing process had advanced far before the patients were received ; in some, as formerly stated, bones were denuded, and tendons and ligaments destroyed. But in very few, even where the destruction was greatest, was treat-

ment by incision omitted; and in those only where, from fever or flux, there was great constitutional debility. The amount of incision was regulated by the extent of disease in the tissues under and around the ulcer. In some instances where it did not descend below the integuments, the ulcerative process being phagedenic rather than gangrenous, and the destruction neither very rapid, nor reaching under tissues, it was sufficient to relieve the more superficial vessels, and to substitute scarification for what is understood by incision. More frequently, however, it was necessary to use the knife freely, passing it through the skin, and into the underlying cellular structure. Whatever the proper depth might be, the scalpel was carried quickly from beyond the limit of surrounding disease to the ulcer, often through it. The distance between the incisions varied, but was generally less than a quarter of an inch; their direction was most frequently parallel in the line of the limb, occasionally radiated from a circle, clear of the affected integuments, to the ulcerated centre, according to the position of parts, and degree of vascular action. In many cases, it was necessary to repeat the practice; in some, frequently.

The effects were immediate, and most gratifying. The practice, however assisted, did not tend to cure in every instance; but it seldom failed, and no case is remembered in which its first results were not remedial, and strongly marked. Turgid, weak, bursting vessels, were effectually relieved and invigorated, the capillary circulation being corrected, and restored. Pain and irritation were so effectually subdued, that, after weeks sometimes of restless nights and wretchedness, men slept soundly, and awoke refreshed, and surprised, not only at their relief from local pain, but also the agreeable change experienced in all their sensations. So signal was the benefit derived from the operation, that, notwithstanding the suffering accompanying it, patients who had experienced it, if there was recurrence of bad symptoms, sought rather than shunned its repetition. It proved incomparably the most powerful anodyne resorted to, and, in fact, the only real one which was employed. It is unnecessary to state, that while pain, preventing

sleep, continues, there can be no progress towards cure in such cases; that it ought, therefore, to be a leading object in every remedial process, and that no one can succeed of which it is not an element.

To relief, or cessation of pain, soon succeeded most decided improvement in the aspect of the ulcer, as well as of the contiguous parts, which had formed the ground-work of the destructive action, and in which it had been extending rapidly. Instead of sanious fœtid discharges from the former—its ashy, livid, or black surface, and abrupt margin—there was secretion of pus, separation of sloughing matter, and a crop of florid healthy granulations; the latter, which had been tumid, darkly inflamed, or œdematous, or having both conditions combined, became flaccid and shrunken, assuming the pale complexion of health. In no instance did the sloughing action extend to the incised surfaces, which either healed speedily by adhesion, or more slowly, but not less surely, by granulation. This, which may appear strange, is unquestionable, and an important fact; for if there were any doubt respecting it, the value of the operation would be lessened, if not rendered problematical; and nothing in the treatment of disease is more certain than its remedial power.

If, after the restorative process was established, there was return of unhealthy action, and impending or incipient sloughing, the incisions were repeated to greater or smaller extent, according to circumstances, with similar results.

Sometimes, when the curative process had gone on steadily for a time, although there was neither return nor threatening of sloughing action, there was slow or uncertain progress, and super-vention of an unsatisfactory state of the parts; the granulations became pale and soft, and the adjacent surface œdematous or slightly inflamed. In this condition, puncturing with a lancet was sometimes substituted for incisions by the knife. In such cases, it answered the purpose, but it is not clear that it had any advantage over the ordinary method even in them, except that it had a less formidable appearance. There are cases, however, in which

it is preferable, those, namely, where there is a very small surface to operate on ; for in them more blood may be abstracted by frequent punctures than incisions, unless they are carried to a depth which may be inconvenient.

But treatment by incision was found extremely useful in a totally different form of ulceration, viz., the indolent, whether primary or succeeding, as it often did, to the rapidly destructive. When, with or without slight œdema of surrounding surface, the granulations were flabby, and cicatrisation became first slow, then stationary, and finally formed a thick, hard cartilage-like ring round the ulcer, which effectually arrested the healing process forming a barrier beyond which it could not pass, it was evident that in order to make any advance, the wall of obstruction must be removed, and new action excited ; and for these purposes, nothing availed so much as carrying a scalpel from the periphery of diseased tissues to the centre, cutting freely, and at many points, through the indurated ring, which formed the limit, and prevented the extension of cicatrisation. The practice was repeated as often as was necessary, which was frequently in some cases.

The first application, after incision, was fomentation diligently employed for a few hours, to encourage and increase resulting discharge. This was universal. In some, but not many cases, poultices were subsequently applied for a short time. The cases in which they were chiefly resorted to, were those characterised by considerable tension of contiguous parts, by increase of heat and strongly marked vascular action, where it was important, by speedily unloading the distended debilitated vessels, to check the progress of gangrenous ulceration. In such cases, the incisions were apt to unite before they yielded the desired amount of discharge ; and poultices promoted the evacuation of sero-lymphous fluid, after fomentation failed to produce the effect. But they were not frequently used, and when they were, seldom continued beyond a day or two. When thought appropriate, pains were taken to derive the greatest advantage from their use, by having them of the proper consistence and temperature, neatly and frequently ap-

plied, and so arranged as to occasion the slightest possible pressure.

Simple as it may seem, not only care, but some judgment is often required to determine the condition where poultices may be advantageously employed ; and, after their proper prescription, the benefit which they are capable of conferring, is frequently lessened or lost, if mischief is not done, by want of attention in making or a slovenly improper manner of applying them. The surgeon must not satisfy himself with ordering those substances, if he desire to do the most for the patient, and his own gratification—the cure of men committed to his charge. He must, as in other things, assure himself, by frequent inspection, that his directions are carried thoroughly into effect ; more in this than some others, on account of its assumed simplicity and want of importance, and where there is therefore more than a common proportion of carelessness and bad practice. In most cases, where the soothing effects of heat and moisture were indicated, they were obtained as effectually from warm water dressings as from poultices, with more precision of application, and greater ease and comfort to the patient ; they were consequently, with few exceptions, preferred.

In the transition state from destructive to restorative action, solution of chloride of lime and diluted nitric acid acted beneficially, and were often continued with advantage, after granulation was established, and the reproductive process had made considerable advance. They did good service by the steady exertion of their gently stimulating, so far invigorating and detergent properties, if the last term, conveying no very distinct idea, may be used.

In some cases where there was unhealthy, phagedenic or partially sloughing action, the parts beyond the ulcer being sound or little affected, undiluted nitric acid was very useful ; and in others, especially those marked by œdema and other symptoms of inaction in the surrounding surface, a solution of nitrate of silver more frequently the rod itself, was applied with excellent effect, to the diseased integuments, as well as to the ulcer.

The one measure, after incision, which was found most useful, and was most constantly employed, was water dressing, warm, tepid, or cold, simple, in a great majority of instances, though sometimes slightly medicated.

But it would occupy much space, and be of little interest, to detail all the applications resorted to in different states and stages of the disease, without determining the value of each, and the exact condition in which it proved remedial: all that is intended is to put on record those means which were, in whatever degree, unequivocally useful. It may, however, be stated generally, that after granulation was established, and while it proceeded favourably, the most simple direct applications were the best. Little was expected from them, and the only quality considered of value was that of very slight excitation; but much was accomplished by regulated temperature, support, and position.

Such were the principal local measures employed in the treatment of ulcer, as unpromising and intractable as is often encountered. It is not necessary to add, especially after what has been written in former pages, respecting its connexion with, or dependence on, constitutional disease, that such remedies as seemed fitted to restore general health, including dietetic substances, were assiduously administered; and that they were modified or changed, in accordance with the varying condition of the patient, and their apparent effects. Concurrently with external applications, internal treatment was steadily, and, from the importance attached to it, anxiously prosecuted; but an account of the various means resorted to would be little more than a recital of those employed in fever and flux, which it would be irksome and useless to restate. After cicatrization was complete, or if it became slow near the point of completion, affusion of cold sea-water was often resorted to advantageously. When not counter-indicated, it communicated constitutional vigour, and gave firmness to cicatrices, which being often of great extent, not unfrequently adherent to bone, and consequently prone to give way, were objects at once desirable and difficult to obtain.

On the whole, the results of treatment in the ulcerative form of disease were such as to satisfy reasonable expectation. One case sketched in a former page, both lower extremities being affected, with great complication and resulting debility, terminated fatally. In another instance, it was necessary, on account of extensive, progressive, and hopeless disorganisation, to remove a limb below the knee. But all the other cases ultimately terminated in recovery. From the amount of destruction, the restorative process was protracted in most; it was uncertain and vacillating in many, frequently arrested in some, the condition being all but desperate, and giving rise to grave questions about the duty of amputation. In such a state of things, it is much to escape with life, and entire limbs; and, although some of the subjects may never be fit for very active duties, on account of the extent and position of cicatrized parts, the effects of the measures instituted, and most zealously, as well as skilfully carried out, are felt to be not only satisfactory but gratifying.

Having now touched, more or less closely, the professional subjects which came directly under observation, it is thought that the notes in which they are recorded may be not inappropriately terminated by a slight account of the medical art among the Chinese; and here the writer would acknowledge his great obligations to the Reverend Charles Gutzlaff. That gentleman, amid a multitude of important avocations, found time to introduce him to native doctors, and became the medium of communication between him and them, translating questions and answers, and so furnishing the materials of the following sketch; which, though, no doubt, defective, and without pretension to give any thing like a full and correct view of the matters to which it refers, is believed to be just, as far as it goes.

SECTION X.

Chinese medicine—Antiquity and unchanging condition—Doctrine of elements—Of numbers—Organisation—Anatomy—Division of regular practitioners—Irrregulars—Materia medica.

THE healing art among the Chinese, with much pretension to learning and practical power, is in a very rude and inefficient state : it is, in fact, a chaos of unfounded conceits, contradictory notions, and pompous phrases. Doctrinally it has close analogy with the system of Pythagoras, as amplified, illustrated, and applied to medicine by Hippocrates ; although it does not possess the coherence and methodical beauty which the former gave to his speculations, nor the keen observation of natural actions, close study of their relations, and acute practical precepts, of the latter. Like the former, the Chinese doctors have much faith in the theory of elements, to which they are constantly making reference ; like the latter, they have hypothetical humours and imaginary spirits, of which they make liberal use in their intercourse with each other, as well as in their communications with the illiterate, and with which they contrive to amuse themselves and dupe their employers.

The apparent immutability of medicine, as of all other institutions and mental operations, is the most prominent point in the

Chinese character. Physies and their application to the nature and treatment of disease, were probably as perfect among them at the time of Pythagoras, as they are now; nay, there is reason to believe that they had reached the state in which they now remain, at an earlier period. This is concluded from what appears on the surface, from all that has been learned through foreign intercourse, from their antiquities, traditions, and historical records. Whether the physical system of Pythagoras or of the Chinese had the broadest basis in truth, and which of them was best fitted for useful application; whether both were original and independent of each other; or whether one was deduced from the other, and in that case which was the first and the transmitter, would be subject of interesting, if not very instructive inquiry. But if it were shown that, though nearly coeval, they were entirely independent of one another, each being the effect of a process of thought carried on in the east and in the west respectively,—similar when formed, but separate in origin and development,—how different has been their duration! The system of the west has long made way for more truthful systems, while that of the east remains in all its force, and gives no sign of alteration or decay.

In this, the Chinese exhibit a great intellectual phenomenon. All other nations and tribes, who have passed the merely savage state, not being bound by eastes like the Hindoos, or absolutely insulated like the Japanese, go either forward or backward at different rates of progression, though the movement is generally in advance. They alone, having long ago reached a certain point, in some respects a high one, in civilisation, mental culture, and artistic accomplishment, continue as they were. They appear to have fallen into a petrified fixedness, which nothing but the most powerful external agents can move. Philosophy should look to this. It is not enough to say that the jealous and exclusive feeling of the government prevent all alteration; for since the time of Pythagoras, their forms of government and races of governors have been often changed; they have been overrun by conquerors, from the west and the north, visited by accomplished travellers,

and for hundreds of years had intelligent European missionaries settled among them. From foreign commodities, foreign ships, and other results of science, they must have seen the superiority of strangers. Information and improvement in many shapes, have been at their doors, and cordially offered to them, but they have rejected with contempt, or made no use of them. Then why should so many millions of men have their intellects trammelled and their hands bound by a single semi-barbarian? If it should be said that they think themselves perfect, and therefore beyond the reach of instruction, that would show at the same time prejudiced ignorance, and something peculiar in mental constitution.

Although the general conception respecting primary substances is similar, there is considerable difference in its development, in the Pythagorean and Chinese systems. The Greek philosopher was satisfied with four elements; the Chinese sages reckon five. While they do not admit one of those assumed by the western physiologist they supply two from their own stock of invention: subtracting air, they add metal and wood. According to their mythology, the five elemental matters are fire, water, earth, metal and wood, from which all substantial things, including the human body, are made, by the operation of the active or the passive, or the union of the productive with the reproductive principle. There is some speciousness in the fanciful fabric which they have thus erected; and they have hedged it round with so much elaborate mysticism and bewildering obscurity, as to render it acceptable to a people who are satisfied with sounds of which they do not ask the meaning, who are ignorant of the first principles of physical science, and destitute of the spirit of experimental inquiry.

As these elements are properly proportioned in the human system, so is the ratio of health. A slight preponderance of one over the others gives rise to temperaments, and proclivity to particular maladies, without inducing them; if the just equipoise is subverted, or disturbed beyond a given point, disease ensues, its nature and degree being determined by the element which is in a state of defect or excess, and the extent of error either way. Thus,

if water be in excess, it will diminish the healthy action of fire, and if it cannot be brought back to the right standard, will, in a certain state of surplus, extinguish it; hence arise dropsies, though when they come to details, they say that there is the yellow dropsy of the liver, and the red dropsy of the spleen,—two very important organs in their physiology, without explaining the connexion between those organic actions and excess of the watery element.

On the other hand, when there is too much fire, it interferes with the wholesome quantity of water, at a particular elevation, destroys it; at the same time, it dries unduly the earth and the wood, perhaps burns the latter, and heats dangerously, if it does not calcine the metals. And so on with the other elements.

To correct such errors in the right proportions, to understand the signs by which they are manifested, to allay the storm among the elements, taking away where there is too much, and giving where there is too little, communicating not only the proper quantity, but giving also the right form and direction to each, thus restoring harmony to the jarring system, and health to the diseased body, is the business of the physician. And doubtless, if the supplies of an immense multifarious materia medica, of which he makes liberal use, and in which the patient, notwithstanding all failures, has much faith, were sufficient for the purpose, he would seldom be found wanting; for, in no part of the world does pharmacy appear in a more flourishing state than in this.

Yet, there are cases in which the doctor confesses his want of power, does not pretend that he can, by medicine, restore the loss of equilibrium among the elements, and wisely confines himself to the outworks, leaving the war in the citadel to subside of itself, or destroy the garrison, according to the force of the conflict. He says it would be folly, for instance, to attempt the cure of small-pox. In that disease he avers that a portion of the elemental fire is detached from the general stock, and accumulated in the stomach. This he represents as necessarily passing to the surface, and burning out there, if life be saved; that it often destroys in

its transit, but that its natural, and only safe progress is centrifugal; that if it pass easily and burn briskly outside, there is little danger; on the other hand, much mischief is to be apprehended, should it smoulder within, or get through slowly and imperfectly; and that consequently any artificial effort which might have the effect of hindering its outward progress should be avoided, as injurious, if not fatal. Notwithstanding his false premises and loose speculations, there is some sense in his conclusion. He has been taught by observation that, though he may modify, he cannot arrest small-pox.

The notions of the philosophers respecting the distribution and especial uses of the various elements in making up the entire body are curious, principally on account of their crudeness, and as showing the poor stuff and foolish fancies, with which men holding themselves superior to all others, and which appear to have undergone no change since the days of Laoutze and Confucius, can be content. It is not known whether all the doctors of the empire hold exactly the same opinions on the subject. There may be different, though it is probable that in this, as in other matters of belief, there is much uniformity in their modes of thinking. However that may be, the oracle of Tinghae, to whom the writer is chiefly indebted for what he has learned of the mystery, and who was represented as the most able expounder of physical doctrine in the place, delivered himself, in answer to questions proposed, to the following effect:

From the element of fire are formed the ten noble organs. This is as imaginative, and as little allied to truth as may be. It was not easy to understand what was meant by the ten noble organs, where situated, or what their offices were; and it was felt that any questions respecting the essence of fire, or how it was converted into organic matter would have been useless.

Water, with less apparent incongruity, where ideas are so strictly mechanical, and when there is total ignorance of vital physiological and chemical actions, is held to be the direct source of the fluids generally. It appears also to be considered the fountain

from which spirit is derived,—a kind of ethereal essence, pervading the body, necessary to its health and very existence, and which is regarded in the light of an Archeus, or guiding and conservative principle. Of this imaginary agent and its influence, more account is taken than of the blood, its liquid results and solid products.

The alimentary apparatus is formed from the element of earth. It is probable that this part of their system has an analogical origin. From the soil spring the principal substances of nutriment. The earth, in the large acceptance of the word, is necessary to their formation; and pure elemental earth is the fit material from which to fabricate the chief, according to their doctrine, the sole organ for assimilating them with, and making them part of the living body.

Bones are produced from metal. As the former are the densest parts of the frame, so the latter, as understood by them, is the hardest of inorganic substances. There seems to be no better reason for the metamorphosis in question, so similar to the conceit of the poet, and so inconsistent with the sobriety of truth; but absurd as it is, it satisfies the people, who consequently ask no further questions.

From the element of wood are formed the five ducts, though it is not clear how the number five is made up. The rectum and urethra constitute two: other two are supposed to be the hepatic and pancreatic outlets, with perhaps the imputed one of the spleen. The last organ holds a high rank in their animal economy; and with them it would form no difficulty in completing the tale, that it has no duct; for their anatomy is as little fettered by fact as their physiology.

Such is the Chinese doctrine of human organization. Whether, under the leaden sway of despotism, and the more crushing weight of fabulous philosophy and false religion, they can continue much longer in the complacent, dreaming ignorance of ages, remains to be seen. Recent events on their shores have shown them, in a way not to be misunderstood, the power, at least, of strangers,

whom they counted weak, simply because they were long in exhibiting their strength. Those events may be the beginning of better things for China. They contain the elements of change, and seem well fitted to form a great practical epoch in its history, such as it has never before experienced; not a change of rulers merely, and the substitution of one dynasty for another, satisfied with the sovereignty, without attempting the improvement of the people, but a change from darkness to light. Unwilling to be taught, and slow to learn, as they are, not yet having learned the connexion of knowledge with power, it can scarcely be doubted that henceforward they must move, however slowly and unsteadily, in the path of intellectual and moral amelioration. This is a tempting theme, which may not be followed in a sketch like the present, but is left to the able and philanthropic men who have studied, and are studying it diligently; who have the means of doing so thoroughly; and who, it is hoped, will have the power, as they have the desire, to aid materially in renovating this vast empire; breaking the incrustation, and shaking off the accumulated dust of ages—dissipating the rubbish, and stirring the dry bones. But to return to the subject in hand.

On its being hinted to the expositor of the human organization, that substantial provision was made for constructing parts of the frame only, and that, according to his showing, there were no materials for forming a large portion of it, he did not choose to proceed with his prelection. He either thought that he had shed enough of his precious light on barbarian darkness, or felt that if he advanced farther, he might get beyond his depth, and therefore considered it prudent to stand upon his dignity.

They affect to understand temperaments by the pulse. When one of the medical sages was requested to declare that of the writer, he laid his fingers along the wrist, appeared to think deeply while he interrogated the impulse, and after a little, said, gravely, that the element of metal predominated; and that in Mr. Gutzlaff, who was present, and submitted to the same scrutiny, the element of wood took the lead; thereby intimating that the

former had less than ordinary disposition to disease, or injury of his osseous frame-work; and that the latter was furnished with powerful excreting action, and therefore little liable to obstructive ailments. The worthy missionary admitted that the doctor's divination respecting that part of his constitutional energy was correct, and that so far he had the merit of being, at least, a good guesser. All that can be said safely of the response vouchsafed to the other inquirer is, that hitherto he has escaped node necrosis and broken bones.

Like the Pythagoreans, they have much reliance on the influence of particular numbers. Five, or one of its multiples, holds the first rank. The pre-eminence of the first is probably derived from the circumstance of its being the number assigned to the elemental substances. Then they say that there are five fingers, five toes, five ducts, five senses, five tastes, ten noble organs, &c. They are addicted to prescribing five three, or a multiple of either, ingredients for making up efficacious mixtures, and observing the same order in the number of draughts, boluses, &c., to be swallowed daily; and they contrive, by precept and practice, to administer drugs abundantly. The similarity between the ancient Greeks and modern Chinese in this respect—belief in the influence of numbers—would be more remarkable than it is, were it not known how generally this species of fatalism is felt among ignorant and ill-informed men, especially among those who dabble on the surface of metaphysics, without descending into the mines of nature, and turning up the ores of physical truth.

For their ideas of the structure of the human body, the Chinese are indebted to imagination even more than for their opinions respecting the division of the surface of the globe; their anatomical plates are consequently more ridiculous, and further removed from reality, than their geographical maps, &c. To dissection of the body, for the purpose of learning the mechanism and uses of the various parts, they never resort. It is not known whether there is any Imperial edict prohibiting it; it is certainly never practised. Even the dim, uncertain light which other people, at

the dawn of scientific inquiry, have derived from comparative anatomy, they neglect and despise. They kill the lower animals only to eat them. Being utilitarians in the strictest and most sordid sense, they continually ask, when anything new is proposed to them, however advantageous it may promise to prove, if it do not directly increase the store of food, or silver, *cui bono*? If they explored, or examined in the most cursory manner, the interior organization of animals, they would not continue gravely to publish the fallacies which the four authorised plates of the human body exhibit.

Three of those plates are devoted to various aspects of the circulating systems. The other refers to the cerebral, pectoral, abdominal, and pelvic organs, of which it gives a most whimsical, and as it embodies the knowledge of the Chinese professors, curious picture.

The brain is represented as occupying a small and central portion of the cranium. What might be the conceit as to the vacant space, could not be discovered; but, drawing from fancy at pleasure, it may be concluded that, in this part of the world, an empty skull does not denote poverty of intellect; and that no credence is given to the aphorism, "that nature abhors a vacuum." Chinese craniology is, therefore, directly opposed to the system of Gall, and utterly subversive of the deductions of phrenology, as it does not permit the brain to come near its bony enclosure. Yet the native portrait painters, from the manner in which they delineate the heads of distinguished persons, seem to have an impression of their reality. Aided, though more moderately than the anatomists, by imagination, they represent their sages, warriors, and demigods, with great development of the parts, alleged to be the especial instruments of the intellectual powers and moral affections. In some cases, they are so liberal in their cranial endowments, as to give an extent of forehead surpassing that of Bacon, Shakspeare, or Scott, both in breadth and elevation. It would, therefore, appear that, in China as in other places, notwithstanding the opposing evidence of anatomy, there

is an intuitive recognition of the general doctrine of phrenology.

Though the plate does not place them in juxtaposition, the doctors call the forehead the door of the brain, from which they say 360 nerves proceed ; but what they understand by nerves, or what they suppose their properties to be, could not be made out, by questioning the most learned men of the place.

The heart is figured low in the thorax, is considered a single cavity, and designated the reservoir of good things ; it has little active connexion, none that can be traced with the general circulation. From above, the windpipe passes directly into it ; while from below, the tube of a second, elective stomach, connected with the first, recipient stomach, by some kind of conduit, enters it at nearly the same point with the windpipe. Short work is thus made with the complicated and mysterious process of assimilation. One vessel proceeds from the heart to the liver, and another descending along the course of the spine, after communicating, by a broad reservoir-like expansion, with the kidneys, *it is presumed* terminates in the genitals. There is, besides, a double canal, connecting the heart at a point near its apex, with the tube last noticed. But what all those things mean, and what part, if any, the heart acts in propelling the blood, the professor who was asked to explain what appeared in the plate, failed to show. Chinese notions regarding the circulating system, as on most other subjects, are peculiar to themselves, and differ entirely from those entertained by European physiologists, anterior to the time of Harvey and Servetus. In this, as in other vital actions, they introduce the sexual system. They have some idea of difference between arteries and veins, but what it is, and what offices they assign to each, could not be ascertained.

The arteries are said to be male and female. Of the former, three, belonging to the hand, proceed from it to the head ; while three, belonging to the foot, originate in the hand, whence they descend to their proper place. On the other hand, three female arteries proceed from the bowels to the hand, to which they be-

long; and three, belonging to the foot, originate there, and thence proceed to the intestines.

Besides these vessels, there is the pulse artery, which moves with every respiration three inches, and performs its circuit in two minutes. The chief concern of the doctor is the study of this artery, that he may clearly understand, and accurately unfold its manifold meanings; for in so much as he has skill to read its language accurately, by so much is he excellent as a practitioner. From it, besides the temperament of the patient, he deduces the diagnostic character of the disease he is called to treat, after which, having settled the kind and degree of disorder which has arisen among the elements, he sets manfully to work, and boldly promises a cure, knowing, what is not peculiar to China, that the man who promises most in medicine is most followed.

The veins are said to circulate day and night, but it does not appear that they believe the motion to be onward and in a circle; for they say, that having arrived at the end, it again commences where it left off. Nor do they admit that the arteries and veins have any connexion; for they allege that all the arteries and veins have their respective cavities, twelve in all, such as the liver and heart, from which they proceed, and corresponding places where they end; and that, throughout the body, there are paths, ducts, and channels, distinct and appropriate to each, so that the blood does not meet with obstruction in its passage, though why it passes, and by what mechanism, does not appear.

The heart is said to be the ruler, from which the spirits proceed; it is also held to be the receptacle of marrow, which comes from the brain, and goes to the reproductive organs. The lungs are vehicles by which the temper is regulated. The liver holds the place of a general, whence proceeds contrivances and orders. The bile acts as umpire, settling disputed points. The spleen performs the part of messenger, and is the fountain of joy—a function not before ascribed to it, but to which it has as good a title as to be considered the seat of ill-humour and despondency. The stomach is the granary of the body, and the governor of the

five tastes. The great duct is the promoter of principles, and the operator of changes; the smaller ones being the receptacles of superfluity, where digestion is carried on. The kidneys are the rulers of strength, whence all skill proceeds. The bladder, having no connexion with the kidneys, is the general reservoir of the absorbents. These, as far as could be gathered through an able interpreter, are their most remarkable conceits respecting the formation and functions of the body.

They divide the labour of healing among various classes of practitioners. Physicians, surgeons, inoculators, and druggists, have their respective lines, though they do not appear in China more than in England, to keep very strictly within their proper limits. The first functionary is said to remain honestly on his own ground, but the surgeon and druggist poach on his property whenever they can.

For a small fee, not equal in value to a shilling, the physician, after examining the pulse, exhibiting deep interest in the welfare of the patient, and profound knowledge of his case, writes a recipe, which, in imposing appearance, would put to shame the most elaborate performance of a London professor. It occupies generally a large sheet of paper, is often diversified by red, added to the ordinary black characters, and is altogether a learned and laborious-looking composition. When carried to the druggist, he spreads it on the counter, examines it attentively, and then proceeds to dispense *secundem artem*. Many ingredients, seldom less than nine or ten, make up the total of articles prescribed; they are almost always powders, sliced roots, or other dry substances, fluids being seldom sent from the apothecary's store. For each, a separate piece of paper is laid out in regular array, some white and others red; the former are the most numerous, and to them the most common simples are consigned, the crimson being reserved for those which are more powerful, or more highly esteemed, such as ginseng.

From the practice of the celestials, terrestrials might take a very useful hint, that, namely, of compelling all dealers in drugs

to distinguish, in a manner that could not be misapprehended, such articles as are, at least, harmless, from those that are destructive in moderate quantities, marking the latter so conspicuously and indelibly, as to place mistakes respecting them out of the question. For this purpose, it would be sufficient to put all innoxious and comparatively inert substances into white vehicles—papers, phials, boxes, &c.—while those possessing poisonous qualities, of whatever force, in the common sense of the word, should be placed in red. To make the practice universal, and derive all possible advantage from it, an act of parliament would be required, rendering it imperative, and attaching heavy penalties to any breach of the law ; but legislation would be well employed for a short time on such a measure. It would be the means of saving many lives which are lost from idleness and inadvertence. If it were at the same time enacted that nothing poisonous should be sold or disposed of, except by the written direction of a well-known medical man, the amount of suicide might be less. It is true that where a person is resolved on such an act, an instrument will seldom be wanting ; for if one fail, another will be found ; but it might happen, if the instant impulse could not be acted on, that the fatal resolution would never be carried into effect. At any rate, carelessness or cupidity should not be allowed, in whatever degree, to minister to the fearful deed of self-destruction.

Surgery, in any proper sense of the word, has no existence among the Chinese ; as might have been concluded, without observation, from their total ignorance of anatomy. They set and support fractures of the extremities, after the fashion of an ordinary farrier ; and they are moderately successful in the reduction of simple dislocations ; but anything requiring knowledge of structure, or the nice application of mechanical power, is beyond their reach.

Their implements form a strange collection of rough tools, more resembling the collection of a cobbler than the instruments of a surgeon. One of them is a small hook ; another is a triangular bit of metal, like the iron of a laundress in miniature, with

a projecting handle ; a third is an exact representation of a reaping sickle ; a fourth has the same form as the last, but with the cutting edge outwards ; a fifth is a sort of Lilliputian spear ; a sixth represents a lance on the same small scale ; and a seventh has a like form, but is truncated at the point. The remainder, nine in number—the whole amounting to sixteen—are puncturing instruments, varying a little in form and size, but all of them much larger than the puncturing needles employed in Europe. Only one of them is round ; the others terminate in an indifferent point, by two, three, or more sides, variously inclined ; but what the object of the slight difference in the shape of those perforators might be, could not be understood.

In their cases of instruments, there is neither scalpel, bistoury, nor bleeding lancet ; nothing but the sixteen contrivances enumerated above. Except by puncture, they work entirely on the surface. Cutting into a cavity, down to a diseased tissue, or off a limb, are barbarous practices of which they are altogether innocent. A vein is never opened by design. There is great horror of shedding blood, except by the hands of the executioner ; but why venesection should be prohibited among people who do not, like the Jews, appear to consider that the blood is the life, is difficult to understand, as in certain states of disease there is, apart from reasoning and experience, an instinctive persuasion of its usefulness.

When a limb is irrecoverably injured, it is left, barring poultices and plaisters, to kill the patient, or drop off by mortification ; and, if there be much hæmorrhage, the process is accelerated by ligatures, passed, not round the vessels, but the limb.

Together with the bone-setting and puncturing noticed above, Chinese operative surgery consists almost entirely in the application of moxas, which, although it was not witnessed by the writer, is said to be practised extensively. Of scientific principles, it is needless to say that it is destitute.

But the sub-division of the small-pox inoculators, and their practice, deserve notice. Instead of introducing the virus directly into the system, by a slight incision, they accomplish their object

in a circuitous and rather complicated way. The crust of a matured pock is thoroughly dried, powdered, and rubbed into the mucous membrane of the nostril, or a piece of cotton, powdered with it, is stuffed into the nose. This is the most common method for the common people; but there is one of greater pretension, though probably less effectual, for the rich. A small metallic cup, shaped like the bowl of a tobacco-pipe, is introduced into the nostril of the child, while the inoculator, applying his mouth to the stem, blows the variolous contents forcibly against the lining membrane.

The practice, whichever method is adopted, is at once more troublesome and less certain than the European; neither circumstance, however, lessens it in the estimation of the people, since it possesses the grand recommendation of having been long practised. With them, it is not novelty, but antiquity that charms. They say, why abolish, or meddle with, their plan of operating, which they affirm has been in use upwards of a thousand years. If this be so, and no reason appears why it should be doubted, they have arrived at the conclusion, through whatever channel, that, by artificially exciting small-pox, its violence could be controlled, long before it was dreamed of at Constantinople. The origin of the practice there, being so obscure as not to be clearly traced, its history in China may be supposed to be involved in impenetrable mystery. Its introduction anywhere, if it was not accidental, is one of the most extraordinary efforts at amelioration ever made, and one of the most successful in lessening the force of a naturally destructive disease. It is the more wonderful, from originating among people in a low state of intellectual improvement, who were little likely to reason, or prosecute experiments on the subject.

Surgeons dispense their own medicines, and local appliances, and do a little, what they can, in short, in way of medical prescription, to any one who will apply for it. They hold nearly the place of the English general practitioner, but their shops are

generally poorly furnished, and neither their employment nor profit is on a large scale.

The department of the druggist is more lucrative than that of the surgeon; for, as the people are fond of physic, and they have no desire to balk the inclination, they not only give on every possible occasion, but give liberally. As an example of the latter disposition, it was observed that five balls, larger than marbles, to be taken at once, were prepared for some form of bowel complaint. It might be assumed that they did not possess very active ingredients, but how the patient, without the assistance of a probang, contrived to gorge them, was the wonder. Men who should order or issue such perilous-looking pellets in England, would be considered fit to deal with the diseases of horses only.

It would be amusing to place together the dose of a Chinese and homœopathic doctor, contrast the pharmaceutical antipodes, and look with the gravity that could be commanded at the Brobdignagian and Lilliputian proportions. Yet there is no saying whether, among the many curiosities which will find their way hence to London, a celestial doctor may not be one; if he do, it will be still less easy to foretell the tide of success which may await him. He would possess pre-eminently the charm of novelty; and if to that he added the irresistible recommendation of boasting loudly, and boldly professing his power to cure all manner of disease, he might prove a formidable rival to the homœopathist. At any rate, he would be his fit antagonist, and a pretty race might be run between them for popular favour. It is suspected, however, that the expounder of the *pun-tsaow* would be beaten, principally through the burthen of his big boluses, by the light weight of the disciple of Hanneman; for the imaginative invalid who delights to toy with the immeasurably minute doses of the latter, would be frightened or disgusted by the drenches and balls of the former.

Here, however, where polypharmacy prevails, and medicines are apt to be valued in proportion to their bulk, the homœopathist would have no chance, whatever might happen to the hydropathist.

The man who professed to cure fever or inflammation by a microscopic remedy, averring that he would subdue the elemental war which subverted health, by an agent so small as to be scarcely within reach of the senses, would be considered a dangerous trifler and designing knave—a pompous charlatan, who, whatever success he might have, through the working of imagination, with hysterical girls, or dyspeptic hypochondriacs, by the simple privation of drugs, should not be trusted with the management of dangerous disease.

Their love of medicine leads the Chinese to take it, when they do not even suspect themselves to be sick. It is common for persons of condition to undergo, especially in spring and autumn, a course of physic, for its prospective benefits—a purifying, renovating process, by which they expect to be made stronger, and guarded against future maladies. Whether, in such cases, the doctor plays with the foibles of his clients, prescribes non-efficients, and so profits by their folly, without injuring their persons; or whether he enters seriously into their views, attempts to mend what is sound, and orders active preparations, could not be ascertained. If he adopt the latter course, there is little doubt that the often-repeated epitaph of the Italian might be written on many a Chinese tomb.

The drug-shops are large, and are commodiously fitted up. They have a great array of drawers and jars, arranged much in the same way as in England; glass vessels are very rare. Different departments are allotted to separate classes of medicaments; care is taken to keep things in order; and there is a degree of neatness and method in their appearance which would not be discreditable to a London laboratory. They do not seek notice by party-coloured bottles and cabalistic signs, which make so great a figure in the windows of English medicine venders, but are rigorously plain, and as far as mere appearance is concerned, appropriate.

On examining the contents of the drawers, boxes, &c., few things were observed identical with, or similar to the medicinal substances employed in Europe. Camphor, rhubarb, and liquorice,

were conspicuous among recognized articles; but our familiar friends in the shape of purging-salts, calomel, tinctures, &c., were nowhere found. Even opium, of which so much is used as a luxury, does not appear to be admitted in the *materia medica*; at least, it could not be traced in any form in the drug-shops. Cinnabar, or a substance much resembling it, is a favourite remedy in many external diseases, and it consequently is a prominent article in every collection. It is applied to superficial ulcers, which are very prevalent, in the following manner. Round the circumference of a circular piece of paper a portion of pitch is spread, the cinnabar being placed in the centre. Whether the pitch is supposed to assist in the cure, or is employed merely for the attachment of the active principle, is not clear, but judging from the persistence of such disease, notwithstanding the continuance of the treatment, the entire effect is little.

As the Chinese convert almost every organised substance into human food, they make similar exactions on the animal and vegetable kingdoms for the cure of human maladies. What is wanted in precision and power, they endeavour to compensate by diversity, as well as abundance of means.

They have a notion, not peculiar to them indeed, that for every disease nature has provided a remedy, if man had only the wit to find it out; they therefore levy contributions everywhere, appearing to think that, if not by judgment, they may by chance hit on what is required. It is not, however, on the principle of accidental discovery, but by a process of close reasoning that, among the stranger substances they have pressed into therapeutical service, elephant's hide holds a high place in the list of remedies for cutaneous disease. Following up the syllogism which is established in such a case, it might be expected that it should be especially applicable in elephantiasis; yet it is not so, its curative agency being exerted in more acute and superficial affections.

There is a good deal of what is called counter-practice in England. While the assistant druggist is dispensing by prescription, the principal is often found performing the more important func-

tion of the doctorate. After listening to the tale of the patient, standing outside his counter, he puts such questions as enables him to settle the matter of diagnosis to his own satisfaction; he then appears to consider the case profoundly, and finishes by directing a subordinate to furnish the sick man with the means of cure. These, he assures the applicant, are the things he wants, that he wants nothing different, and that if they be not sufficient to establish health, he knows where to find more, taking care at the same time to supply an ample store. All this is so like what happens every day in England that, it would be difficult to tell the difference.

There is another point of similarity, connected with that just noticed, in the pharmaceutical practices of the two countries, which, considering the general contrariety of their usages, is curious; it consists in providing ready-made remedies for prevalent and popular diseases. In England every drug-shop has an ample supply of infallible cures for bilious, dyspeptic, and nervous affections, as well as every other human infirmity, prepared, labelled, and recommended by the experience of ages, the universal suffrage of the afflicted, and the sanction of government. The Chinese have not reached such legislative perfection as to enable them to have their life-conferring nostrums patented and protected by the state; nor have they the English horror of bile, and consequently do not tax their ingenuity to discover remedies for bilious disorders. But in their own way, and with their views of human weakness, they labour, and they say successfully, for the benefit of their suffering fellow-mortals. There is no lack of cures for all evils, as well as of powerful promoters of enjoyment. On the druggists' counters are ample boxes containing preparations for such purposes as these,—to arrest cholera instantly, to communicate strength directly, to infuse courage, to excite love, and confer the faculty of being loved, and so on, in proportion to the wants and wishes of individuals. This is sufficiently ridiculous, but is not more so in reality than the pretensions to similar efficacy constantly put forth in more enlightened places, and is probably much

less mischievous. The Chinese panaceas, hero-making mixtures, philtres, and medicated charms, are believed to be generally harmless, which is more than can be predicated of many of the compounds so much vaunted and consumed in England under the titles of antibilious, antidyspeptic, antinervous, *antiomnia mala* medicines; for it cannot be doubted that they often subvert health, slowly indeed in most cases, but surely, where it is all but entire; and that in others they increase the evils which they are alleged to remedy.

There are also oculists and dentists, each superior to his neighbour, all professing to be perfect, and capable of repairing whatever may be wrong in their respective departments. Besides these, and the physicians, surgeons, druggists, and inoculators, who may be considered the regular practitioners, there are quack doctors of various kinds, no way inferior to their fellow-philanthropists of the west in staying the course of the most fatal maladies; so that here, as elsewhere, the simple might conclude themselves beyond the reach of danger, and the power of death, provided only that they had the means of purchasing the life-perpetuating elixirs, so abundantly furnished.

The most remarkable of the irregulars is a professor of specious mien, resembling the Vates of ancient Rome, and uniting the offices of prophet, priest, and healer in his own person. He is generally a man of grave, and even commanding appearance, with a white flowing beard, and wearing a kind of sacerdotal robe. He takes his station, with the keys of knowledge future as well as present on a table before him, at the door, in the porch or interior of a temple, and has many followers; for to his shrine repair the curious inquirers into things to come, the broken in health and fortune, and the despairing of every kind; and he has comfort and healing for them all. No case is beyond his ken, nor any so desperate that he cannot remedy it; and it therefore happens that when the medical sages fail, the sick apply to him for the succour which the other cannot give.

By the way, the temples are used for many purposes besides

that of worship. In addition to soothsayers, there are found within the walls dealers in sweet and other meats, and players at petty games, and on a stage, facing the altar, and long array of idols, parties of scenic performers, dressed gaudily, and strutting, and mouthing, in the most approved Thespian fashion. The temples are the only established places of theatrical representation, which has no resemblance to the religious dramas formerly exhibited in Christian churches; and the show-gods are content, through their degraded ministers to share the sanctuary with gamesters, gluttons, impostors, and mountebanks. The Mandarins and other great men convert them likewise into caravansaries, when they want such accommodation.

The Chinese pharmacopeia, or rather *materia medica*, is, in accordance with what was stated above, a work of great magnitude, a brief epitome of it in the writer's possession, extending to upwards of 1,300 octavo pages. Like all their other devices, it lays claims to great antiquity, and is represented as a perfect composition, omitting nothing that is curative, and admitting nothing that is useless, or can injure. The whole is divided into six books, which are subdivided into chapters and sections in the following manner:

Chap.	Book I.— <i>Treats of grasses:</i>	No.
I.	Of those growing on hills	55
II.	„ growing in marshes	35
III.	„ fragrant	58
IV.	„ poisonous	29
V.	„ spreading and creeping	28
VI.	„ aquatic	7
	„ growing on stones	6
	„ mosses	3

	Book II.— <i>Treats of trees:</i>	
I.	Of fragrant woods	25
II.	high growing trees	26
III.	free growing	20

Chap.		No.
IV.	Of luxuriant	4
V.	timber	6

Book III.—*Treats of fruits :*

I.	Of large fruits	6
II.	mountain	14
III.	foreign	9
IV.	savoury	5
V.	small, growing on shrubs	5
VI.	watery	10

Book IV.—*Treats of vegetables :*

I.	Of luscious	23
II.	supple and smooth	21
III.	those bearing small fruits	7
IV.	aquatic	5
V.	fungous	4

Book V.—*Treats of grains :*

I.	Of Hemp, wheat, and rice	11
II.	millet	16
III.	pulse	13
IV.	grains fermented	16

A SECOND BOOK V.—*Treats of minerals, of fluids, of fire, and of earth :*

1st Section.—*Treats of minerals :*

I.	Of metals	8
II.	precious stones	3
III.	other stones	16
IV.	saline substances	13

2nd Section.—*Treats of fluids :*

I.	Of celestial	4
II.	terrestrial	11

Clap.

No.

3rd. Section.—*Treats of fire :*

Kinds of 10

4th Section.—*Treats of earth :*

Kinds of 10

BOOK VI.—*Treats of animals :*

I.	Of birds of the wilderness	11
II.	„ of the water.	3
III.	„ of the forest	2
IV.	tame animals	9
V.	common quadrupeds	15
	rats and mice	2
	insects chrysallined	5
	„ produce of eggs	11
	„ engendered by moisture	4
VI.	Of fishes with scales	10
	„ without scales	19
	dragons	4
VII .	Of serpents	4
	shell-fishes—tortoises	3
VIII.	Offrogs	16
	human species	14

To this their general scheme of arranging medicinal substances, though no conjecture is offered as to its meaning, an example or two of their therapeutical reasoning may be appended.

Gold is of a moderately acrid taste; dissolved by mercury, it is poisonous, and will cause death, if taken in a larger dose than three candareens. It is a heavy metal, and hence suppresses fear, tranquillizes the heart and gives rest to the soul. Being a corrective of the element of wood, it proves remedial in spasmodic affections, diseases of the liver and gall, and all disordered actions of the five ducts.

Edible birds' nests are of a sweet insipid taste, and are restora-

tive to the lungs. They transform phlegm into other substances, and thereby cure cough. Combined with other things, they prove powerful tonics, and are of great use in consumption. In all diseases of the lungs arising from disorganisation, this is the best medicine, and will often do great good when every thing else fails. In chronic dysentery it increases the power of the stomach, and is very beneficial in small-pox. There is a long disquisition on the materials, and manner of forming the nest, and the various opinions of the most learned on the subject are quoted; preference, however, is given to that of a sage who maintained that the bird picked up small fishes, glued them together, and so constructed the precious commodity.

But ginseng is the paramount promoter of health, and prolonger of life. It is said to possess astonishing power, not only of sustaining, but restoring the human frame, and is regarded with a degree of admiration bordering on religious adoration. No one's case need be considered desperate, who can procure this, the *pabulum vitæ*, in abundance; but it is so costly, as to be beyond the reach of the great proportion of the afflicted. Generally it is, except in very small quantities, an article of sale by itself, the man who deals it dealing in nothing else; and it cannot be procured in every drug-shop. At Tinghae, the writer visited a ginseng repository, which was a most unpromising and barren-looking place. The commodity is too precious to be displayed at windows, or deposited on shelves. Strong boxes behind a rampart of counters alone appear; there it is rigidly kept, disposed in small cases, each of which contains about a drachm weight. A stranger well introduced, or a person of known character, may look at, but not touch, it, till he has paid the price. Proverbially it is represented as worth more than its weight in gold, which is confirmed by common practice; for the dealer alluded to asked, as a matter of course, for a bit shown, at the rate of twenty-four dollars an ounce.

APPENDIX.

THE subjoined synoptical view of the cases in which post-mortem examination was instituted, during the first three months, in the hospital of the Minden, is given for the following reasons, mainly—First, to show the similarity, approaching closely to sameness, which characterized a large proportion of the whole; second, to indicate the utterly hopeless condition in which a great majority of the subjects were admitted; and third, to point attention particularly to the sound state in which organs generally, excepting always the large intestines, was found. The uniformity and violence with which the latter structure—the inferior portion of the alimentary tube—was affected, was remarkable. But the integrity of other organs, in most instances, especially of the liver and spleen, was much more remarkable; it was, in fact, so striking, as to be almost startling, because so unexpected, in such forms of disease. Where no note was made of structure, it was in a normal state. It may not be unnecessary to add, that the autopsies were performed, and the appearances recorded, by one or other of the assistant surgeons; but that the examinations were made in presence of the Surgeon or writer, with very few exceptions of both; and that pains were taken to observe and register appearances correctly.

Date of Entry.	Date of Death.	Names.	Age.	Quality.	From whence received.	Primary Disease.	Locality where the disease was contracted.
1842.	1842.						
Oct. 1.	Oct. 23.	Ed. Duggins	..	Corporal, 98th Regt.	H. M. S. Belleisle.	Cholera spasmodica.	Yang-tse-Kiang.
"	18.	Pat. Bagley	..	Private do.	do.	Dysentery & Intermit. fever.	do.
"	22.	Thos. Bagley	..	do.	do.	Dysentery & Intermit. fever.	do.
"	14.	Wm. Brodis	..	do.	do.	Cholera & Dysentery.	do.
"	19.	John Brien	..	do.	do.	Intermit. fever & Dysentery.	do.
"	10.	Robert Bacon	..	do.	do.	Dysentery.	do.
"	9.	W. Brown	..	do.	do.	Intermit. fever & Dysentery.	do.
"	Nov. 6.	Thos. Dawson	..	do.	do.	Dysentery.	do.
"	Oct. 13.	Thos. Calligan	..	do.	do.	Dysentery.	do.
"	12	Joseph Ham	..	do.	do.	Cholera & Dysentery.	do.
"	Nov. 21.	Tho. M'Grane	..	do.	do.	Intermittent fever.	do.
"	Oct. 20.	Wm. Holland	..	do.	do.	Dysentery.	do.
"	17.	James Fish	..	do.	do.	Cholera & Dysentery.	do.
"	9.	Joseph Stone	..	do.	do.	Dysentery.	do.
1.	Dec. 7.	Tim. Sullivan	19	Boy 2nd class.	do.	Phagedenic ulcer.	do.
2.	Oct. 26.	Jer. Sweeney	19	do.	do.	Scorbutic ulcers.	do.

Most prominent symptoms when received.	Principal lesions presented on post-mortem examination.
Great prostration and emaciation.	Five ounces of serum within the pleura; colon and rectum livid, hypertrophied, and deeply ulcerated.
Considerable emaciation, irregular intermittent fever, chronic dysentery, and bronchitis.	Eight ounces of serum in the pericardium; bronchi filled with mucus; rectum and colon livid, deeply ulcerated, and of a fibro cartilaginous structure.
Extreme prostration, considerable emaciation, chronic dysentery, and bronchitis.	Two gallons of serum in peritoneum; colon and rectum livid, deeply ulcerated, in some parts approaching sphacelus.
Great prostration, emaciation, bronchitis, chronic dysentery.	Colon and rectum livid, hypertrophied, and deeply ulcerated.
General dropsy and chronic dysentery.	Six ounces of serum in pericardium, one gallon in peritoneum; intestinal tube infiltrated, and much thickened; colon ulcerated.
Great prostration, considerable emaciation, chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Great prostration, considerable emaciation, chronic dysentery.	Liver adherent to the diaphragm; colon and rectum softened, hypertrophied, and ulcerated.
Great prostration; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Great prostration, profuse ptialism, and chronic dysentery.	Spleen softened, colon and rectum livid, thickened, and deeply ulcerated.
Great prostration; chronic dysentery.	Colon and rectum ulcerated, sphacelated, and perforated.
Great prostration; delirium.	Small vomica in lower lobe of right lung; colon and rectum thickened; villous coat abraded; two ounces of serum under the dura mater.
Great prostration, ptialism, chronic dysentery.	Three ounces of serum under dura mater; colon and rectum softened, hypertrophied, livid, and deeply ulcerated.
Great prostration; chronic dysentery.	Rectum and colon livid, thickened, and ulcerated.
Great prostration, considerable emaciation, chronic dysentery.	Colon and rectum livid, softened, deeply ulcerated, and of a fibro-cartilaginous consistence.
Cachexia; sloughing ulcer of the right tarsus, and the left leg and tarsus.	Spleen studded with tubercles; colon and rectum livid, thickened, and ulcerated; right phalanges and lower section of tarsus perfectly denuded; also two inches of the lower third of the right tibia, and three inches of the fibula, with gangrene of the integuments; left kidney deficient.
Great prostration, cachexy, ulcer, and phthisis.	Hepaticization of lungs; vomica in right upper lobe; six ounces of serum in pericardium, and three quarts in peritoneum.

Date of Entry.	Date of Death.	Names.	Age.	Quality.	From whence received.	Primary Disease.	Locality where the disease was contracted.
1842.	1842.						
Oct. 3.	Oct. 12.	John Meikel	24	P. Marine	Pelican	Dysentery	Chusan
"	11.	Henry Hall	25	Supy. L. M.	Thalia	Dysentery	River Hoogley
"	10.	J. Rossiter	28	P. Marine	do.	Dysentery	Chusan
"	24.	Walter Harris	21	Supy. L. M.	do.	Hepatitis	do.
9.	16.	James Scott	22	A. B.	Endymion	Dysentery	Yang-tse-Kiang
"	Nov. 3	Jos. Rindall	21	Ordinary	do.	Dysentery	do.
14.	3.	John Beart	22	A. B.	Dido	Synocha	do.
16.	Oct. 29.	R. Yeomans	20	Capt's Steward	Driver	Dysentery	do.
19.	26.	Thomas Floyd	17	Boy 2nd class	Vixen	Intermit. fever & dysentery	do.
20.	28.	Fra. Bayford	25	P. Marine	Cornwallis	Uleers	do.
"	Nov. 9.	James Fowel	23	do.	do.	Dysentery, intermittent fever & cholera	do.
"	20.	John Knight	21	Ordinary	do.	Intermit. fever & dysentery	do.
"	15.	David Hannah	26	do.	do.	Intermittent fever & ulcer	do.
22.	27.	George Sutton	22	P. Marine	Harlequin	Dysentery	do.
"	16.	Alfred Vinee	...	Corporal, 98th Regt.	H. M. S. Belleisle	Dysentery	do.
"	12.	James Darby	...	Private do.	do.	Dysentery & intermit. fever	do.

Most prominent symptoms when received.	Principal lesions presented on post-mortem examination.
Dysentery; very frequent sanguineous dejections.	Omentum maculated; peritoneum suffused; colon livid, infiltrated, deeply ulcerated; rectum sphacelated and perforated.
Extreme prostration; great emaciation; recurrent dysentery.	Colon and rectum livid, infiltrated, deeply ulcerated, and sphacelated.
Phthisis.	Lungs studded with tubercles in their various stages; two vomica in left upper lobe.
Acute pain, and tenderness of right hypochondrium; dry cough.	A large abscess in the right lobe of the liver, with ulceration and perforation of the abdominal parietes; caries of the right false ribs.
Recurrent dysentery; dejections, sanguineous, quotidian, intermittent fever.	Colon and rectum livid, thickened, ulcerated, and perforated.
Great prostration; frequent dysenteric dejections; bronchitis.	Colon and rectum livid, thickened, and ulcerated.
Great prostration; sloughing ulcer of the legs; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Dysentery, frequent sanguineous dejections.	Colon and rectum livid, thickened, and ulcerated.
Great prostration, emaciation; chronic dysentery; aphthæ.	Liver tuberculated; mesenteric glands enlarged; colon atrophied; villous coat studded with superficial ulcers.
Great prostration, emaciation; chronic dysentery; atonic ulcers; phthisis; aphthæ.	Right lung adherent over the whole surface; a large vomica, with gangrene of the parietes, in the upper lobe.
Great prostration; emaciation; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Great prostration; emaciation; chronic dysentery; phthisis.	Right lung adherent to the parietes, and tuberculated; two small vomica in upper lobe; colon and rectum livid, thickened, and ulcerated.
Cachexy; emaciation; ulcers on legs.	Right lung adherent; a small abscess on the upper surface of the spleen; structure softened; liver containing several tubercles in a state of suppuration; colon and rectum livid, much hypertrophied and ulcerated.
Great emaciation; ascites.	Right lung adherent; five pints of serum in peritoneum; colon and rectum livid.
Phthisis; chronic dysentery.	Lungs adherent to parietes; colon and rectum livid, thickened, and ulcerated.
Great prostration; emaciation; general dropsy.	Two ounces of serum in pericardium, and one gallon in peritoneum; liver hypertrophied; colon and rectum livid, thickened, and ulcerated.

Date of Entry.	Date of Death.	Names.	Age.	Quality.	From whence received.	Primary Disease.	Locality where the disease was contracted.
1842.	1842.						
Oct. 22	Nov. 28.	J. Hardman	..	Private, 98th Regt.	La Belle Alliance	No case sent, from his own description, it was pulmonitis	Yang-tse-Kiang
"	6.	T. Chambers	..	do.	Belleisle	Dysentery	do.
"	9.	David Heaney	..	do.	do.	Dysentery & intermit. fever	do.
"	Jan. 3. 1843.	Wm. Grainger	..	do.	do.	Dysentery & intermit. fever	do.
"	24.	Ed. Smith	..	do.	do.	Dysentery & intermit. fever	do.
"	30.	J. Hampton	..	do.	do.	Intermittent fever	do.
"	15.	M. Seanling	..	do.	La Belle Alliance	No case sent, says he had dysentery & intermittent fever	do.
"	2.	John O'Brien	..	do.	do.	No case sent, says he had dysentery & intermittent fever	do.
"	Oct. 28.	John Taylor	..	do.	do.	No case sent, says he had dysentery & intermittent fever	do.
"	Nov. 3.	Jos. Macey	..	Sergt. do.	do.	No case sent, says he had dysentery	do.
"	Dec. 6.	John Joyee	..	Private do.	do.	No case sent, says he had intermittent fever	do.
"	3.	Thos. Hayes	..	do.	do.	No case sent, says he had intermit. fever & sloughg. ulcer	do.
"	Nov. 3.	John Gee	..	Sergt. do.	do.	No case sent, says he had dysentery & intermittent fever	do.
"	Dec. 5.	W. Hammond	..	Private do.	do.	No case sent, says he had dysentery & intermittent fever	do.
"	Nov. 6.	J. Mackrell	..	do.	do.	No case sent, says he had intermittent fever	do.
"	21	James Mortar	..	do.	do.	No case sent, says he had intermittent fever	do.

Most prominent symptoms when received.	Principal lesions presented on post-mortem examinations.
Great prostration; emaciation; phthisis; chronic dysentery.	Lungs extensively adherent, parenchyma contained numerous tubercles in their various stages; colon and rectum livid, thickened, and ulcerated.
Great prostration; emaciation; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated; lungs adherent to parities.
Great prostration; emaciation; chronic dysentery; and intermittent fever.	Colon and rectum livid, thickened, and ulcerated.
Extreme prostration and emaciation; chronic dysentery, and intermittent fever.	Middle lobe of right lung contained a small tubercle in the softened state; colon thickened and highly vascular.
Great prostration; chronic dysentery; intermittent fever; profuse ptyalism.	Colon and rectum livid, thickened, and ulcerated.
Great prostration and emaciation; bronchitis ascites.	Ruptured aneurism of the descending thoracic aorta; left lung adherent; structure hepatized; colon livid and thickened.
Extreme prostration; great emaciation; chronic dysentery.	Colon livid, thickened, and ulcerated.
Extreme prostration; great emaciation; chronic dysentery; ptyalism.	Colon and rectum livid, thickened, and ulcerated.
Great prostration and emaciation; chronic dysentery.	Two quarts of serum in the peritoneum; five ounces in the pericardium; colon and rectum livid, thickened, and ulcerated.
Great prostration and emaciation; chronic dysentery; ptyalism.	Colon and rectum livid, thickened, and deeply ulcerated.
Extreme prostration; great emaciation; ascites; and intermittent fever.	Upper lobes of both lungs tubercular; colon and rectum livid and thickened—the latter gut ulcerated.
Extreme prostration; great emaciation; ulcer and caries of left tibia; chronic dysentery.	Left lung adherent; lower part of the lower lobe hepatized; colon and rectum livid, thickened; villous coat corrugated.
Prostration and great emaciation, and intermittent fever.	Colon and rectum livid, thickened—the latter ulcerated.
Great prostration; emaciation; chronic dysentery.	Colon and rectum livid, thickened, and deeply ulcerated.
Great prostration; emaciation; profuse ptyalism.	Colon and rectum livid, thickened, and ulcerated.
Great prostration; emaciation; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.

Date of Entry.	Date of Death.	Names.	Age.	Quality.	From whence received.	Primary Disease.	Locality where the disease was contracted.
1842.							
Oct. 22.	Nov. 8.	Ebenezer May	..	Private, 98th Regt.	La Belle Alliance	No case sent, says he had dysentery	Yang-tse-Kiang
„	Dec. 6.	J. Boardmore	..	do.	do.	No case sent, says he had dysentery & intermittent fever	do.
„	Nov. 25.	Jas. Johnson	..	do.	do.	No case sent, says he had dysentery & intermittent fever	do.
„	Oct. 25.	Alex. Hall	..	do.	do.	No case sent, says he had dysentery	do.
„	Dec. 19.	Jos. Almond	..	do.	do.	No case sent, says he had dysentery & intermittent fever	do.
25.	Nov. 1.	Jos. Packwood	19	Private Marine	Cornwallis	Dysentery	Chusan
„	Oct. 28.	John Yeo	40	Capt. fore-castle	do.	Dysentery	do.
„	26.	Roger Share	28	Marine	Endymion	Dysentery	Yang-tse-Kiang
„	Nov. 24.	Thos. Pearson	21	P. Marine	do.	Intermit. fever & dysentery	do.
„	2.	Wm. Lloyd	19	Boy 1st class	do.	Intermit. fever & dysentery	do.
27.	5.	Jas. M'Ilmail	25	A. B.	Algerine	Intermit. fever & dysentery	do.
28.	14.	John Collins	22	A. B.	Cornwallis	Dysentery	do.
30.	13.	Wm. Cox	21	Boy 1st class	Harlequin	Dysentery	do.
Nov. 27.	23.	T. Cheadle	..	P. R. Artillery	Transport Sophia	Dysentery	do.
6.	15.	T. Walker	24	Carpr. mate	Algerine	Intermit. fever & dysentery	do.
„	8.	James John	30	P. Marine	Cornwallis	Intermit. fever & dysentery	Chusan

Most prominent symptoms when received.	Principal lesions presented on post-mortem examinations.
Great prostration ; emaciation ; chronic dysentery ; and ptyalism.	Colon and rectum livid, thickened, and deeply ulcerated.
Great prostration ; emaciation ; chronic dysentery and ptyalism ; intermittent fever.	Twenty ounces of serum in pleura, six ounces in pericardium, two quarts in peritoneum ; colon and rectum livid, much thickened, and deeply ulcerated.
Great prostration ; emaciation ; ptyalism.	Ramolissement of cerebrum and cerebellum, colon and rectum livid, thickened, and deeply ulcerated.
Moribund ; great emaciation ; chronic dysentery ; ptyalism.	Colon and rectum livid, thickened, and deeply ulcerated.
Great prostration ; emaciation ; chronic dysentery and ptyalism ; intermittent fever.	Four ounces of serum in pericardium ; colon and rectum livid, thickened, and deeply ulcerated.
Pyrexia ; acute dysentery.	An abscess, the size of a nutmeg, in the substance of the spleen. Colon and rectum livid, much thickened, and deeply ulcerated.
Great prostration ; constant dysenteric purging ; loss of power in the sphincter ani.	Colon and rectum livid, much thickened and deeply ulcerated.
Moribund ; much emaciated ; constant dysenteric purging.	Colon and rectum livid, thickened, and deeply ulcerated.
Prostration ; emaciation ; chronic dysentery ; and intermittent fever.	Colon and rectum livid, thickened, and ulcerated.
Great prostration : emaciation ; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Great prostration ; emaciation ; chronic dysentery ; irregular intermittent fever.	Hypertrophy and induration of liver, ascending and transverse arch of colon livid, sphacelated, and ruptured ; rectum much thickened and deeply ulcerated.
Great prostration ; emaciation ; chronic dysentery.	The lower third of the ilium, colon and rectum, were thickened, and the villous coat superficially ulcerated.
Extreme prostration and emaciation ; chronic dysentery.	Colon and rectum livid, thickened, and ulcerated.
Great prostration ; chronic dysentery ; intermittent fever ; ascites.	Twelve ounces of serum in peritoneum ; colon livid and much thickened ; rectum sphacelated.
Great prostration ; emaciation ; chronic dysentery.	Five quarts of serum in peritoneum ; an abscess containing a quart of pus in the right lobe of the liver ; colon and rectum livid, thickened, deeply ulcerated and perforated.
Great prostration and collapse ; dysentery.	Two pints of serum in peritoneum ; colon and rectum livid, much thickened, and deeply ulcerated.

Date of Entry.	Date of Death.	Names.	Age.	Quality.	From whence received.	Primary Disease.	Locality where the disease was contracted.
1842.							
Nov. 7.	Nov. 16.	Wm. Purvis	19	Bo y 1st clas	North Star	Dysentery.	Yang-tse-Kiang
21.	Dec. 2.	Wm. Davis	24	Ordny.	Corn-wallis	Intermit. fever & Dysentery.	Chusan
Dec. 1.	6.	John Morgan	26	A. B.	Rattle-snake	Pulmonitis.	do.
13.	16.	Chas. Seotland	34	A. B.	Thalia	Pulmonitis.	do.
15.	21.	J. Horsepool	16	Boy 2d class	Royalist	Intermittent fever.	do.
12	24.	Lieut. Robert Ancell	..	Agent of Transports	Transport Sir R. Peel	Intermittent fever.	Yang-tse-Kiang
Nov. 2.	Jan. 2 1843.	Philip Morean	..	P. R. Artillery	Sophia	Dysentery & Intermit. fever.	do.

Most prominent symptoms when received.	Principal lesions presented on post-mortem examinations.
Extreme prostration and emaciation.	Colon and rectum livid, much thickened, deeply ulcerated and perforated.
Great prostration ; emaciation ; recurrent dysentery.	Colon and rectum livid, much thickened, deeply ulcerated and perforated.
Prostration ; delirium ; subsultus ; abdominal respiration.	3xx. of serum in pleura ; lungs hepatised, but more particularly the right ; colon and rectum thickened and slightly ulcerated.
Considerable dyspnœa ; hurried and painful inspiration ; harsh dry cough ; imperfect decarbonization of the blood.	3iij. of serum under dura mater ; considerable effusion under the pia mater ; blood vessels turgid ; right lung hepatised.
Prostration ; partial coma ; delirium.	Bronchial ramifications filled with pus ; 3vj. of serum beneath the dura mater ; also, effusion into the ventricles ; great engorgement of the blood vessels ; perfect ramolissement of cerebrum and cerebellum.
Great prostration ; adynamia ; stupor ; and perfect anorexia.	3vj. of serum in arachnoid ; also, effusion beneath the pia mater ; 3xx. of fluid in the pleura ; colon hypertrophied.
Great prostration ; emaciation ; chronic dysentery ; intermittent fever.	Two gallons of serum in peritoneum ; colon and rectum livid, thickened, and ulcerated.

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